Textile World

VOL. 86, NO. 7—ESTABLISHED 1868

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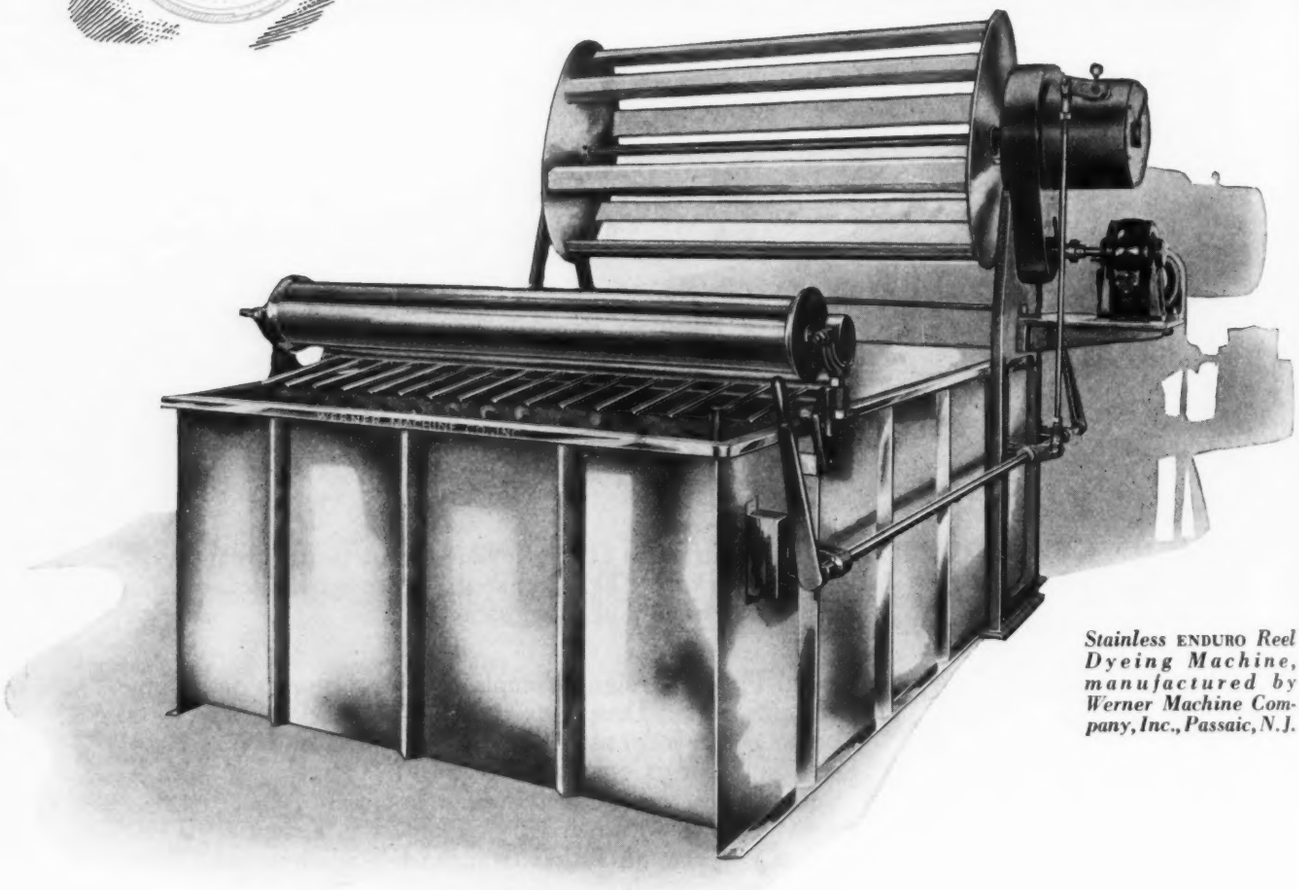

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Textile World

June, 1936

Editor: DOUGLAS G. WOOLF

Feeling Better, Thank You

THE textile industry can report progress this month. It has gone through one of those rapid shifts whereby confidence has replaced pessimism.

For some of this improvement, the industry can claim no credit. The Supreme Court gets an "assist" for its decision on the Guffey Act, which definitely threw the Ellenbogen Bill out the window for the time being. Even though that measure had been given little chance of passage, its threat was an unsettling influence, the removal of which helped considerably.

The 50% tariff increase on imports of certain cotton cloths from Japan was another outside factor which helped. Even though many felt that the increase was inadequate, all agreed that it was "in the right direction"—and the effect was salutary.

From the outside also came good reports of general business, including prospects of less than seasonal slump this summer—not to mention the approach of bonus expenditures on June 15.

■

It was from the inside, however, that the most important progress was made, in our opinion. Within the last month, the sense of leadership and the confidence in an objective have been recaptured. This was particularly true in the cotton division—but, since it was there that the immediate need was possibly the greatest, and since that branch has a major psychological effect on other branches, this is actually an industry-wide development.

Most of the pessimism of a month ago was due to some increase in the departures from code wages-and-hours standards. Even though an overwhelming majority continued to observe those standards, the number of defections was sufficient to create uncertainty and price weakness.

As a corrective in this situation, the American Cotton Manufacturers Association called an executive meeting in Charlotte and secured not merely endorsement of compliance but promise of active participation toward insuring compliance. Supporting this action was the stand taken at timely meetings of two State associations—Georgia and South Carolina.

Of further and very real assistance were the frank and forceful utterances of Dr. Claudius T. Murchison, president of the Cotton-Textile Institute, at the three meetings in the South.

Last, but not least, there was the effective supporting action from selling agents—initiated by Joshua L. Baily & Co.—involving the stamping, on invoices, of a clause to the effect that the merchandise involved had been manufactured "in conformity with the wage standard of the cotton textile industry (minimum rate of 30c. per hour.)"

■

Out of all this has come new hope. Resistance to price pressure has been reduced so that manufacturing margins on certain products, which had been sliding down-hill for months, have been pegged at last. Partly as cause and partly as effect of the new spirit, demand has picked up again in some of the hitherto stagnant divisions. At the moment, it looks like a better summer than is usually anticipated for that season—and a decidedly better fall than was generally expected a month or two ago.

There is this qualification, however: Much of the gain, to date, has been psychological. It is going to take courage and determination to convert it into actual gain. Fortunately, the industry has been showing these traits again recently.

The Editor Says:

The N.Y. Minimum Wage Decision

SINCE the report of recent southern meetings (see page 76) was written, an event occurred which changed some of its implications—particularly the reference by one speaker to possible uniform State laws on hours and wages, backed by the Inter-State Pact idea. The event was the invalidation of the New York minimum wage law by the Supreme Court.

We do not recall a previous decision of that Court whose timing—accidental of course—was so dramatic. The country had more or less squared off into two camps: those favoring Federal control of wages and hours, and those fighting for the States rights principle. The latter, in fact, seemed destined to be the slogan of one political group. And overnight those favoring State laws found themselves as impotent as those favoring Federal control. The New York case decision did for the former group what the Schechter case decision did for the latter.

Eventually, we are confident, this latest development will prove to have been helpful. It has removed one of our most perplexing national problems from the political arena. Neither side has a weapon to fight with. And politics is just the last thing needed to help solve this riddle.

Furthermore, the decision means that an answer will be found. Our reason for making this statement is our belief that the great majority of people in the country want to see some sort of protection for both employees and ethical employers against unethical employers. We are conscious of the fact that, in the reaction against the NRA and other phases of the New Deal, many manufacturers have swung to the other extreme and are protesting loudly that they want no vestige of governmental interference—whether Federal or State. What they mean, we believe, is that they want no form of governmental *control*. We do not think they really mean they want no government *help* toward the enforcement of industry's own self-government. We went into this in detail in the leading editorial of last month's issue; we urge that this distinction be kept clearly in mind in all discussions of this problem, so as to avoid the confusion which has attended much of that discussion in the past.

Reducing this to simple terms, it is absurd to believe that we can have the countless safeguards for protection of society against anti-social individuals which now exist in our Federal, State, County and Municipal laws, and yet have no safeguards against the most dangerous individual of that type: the exploiter of labor. The absurdity becomes more evident when it is realized that attempts toward developing this type of protection might conceivably bring as their reward a trip to Atlanta at Government expense.

Obviously an answer must be found—and will be found—not in the political conventions and campaign from now to November, but in the sober thinking of responsible groups representing all phases of our national life. Out of that thinking must be crystallized a line of action for consideration by the proper legislative groups.

To re-emphasize one point, this thinking must *not* be political. It has in fact nothing to do with politics. It is concerned with people's lives and their happiness; it has to do also with the prosperity of business itself. Past convictions and prejudices must be discarded. A completely open mind is an essential; there is not a man in this country today who can give, now, the best answer. The complications are too many; the confusion due to past political agitation too great. But the best answer will be forthcoming. It is every citizen's duty to contribute his thinking toward that solution.

Readers' Comments on Ellenbogen Editorial

▼ I have just had an opportunity to read your editorial in the May issue of TEXTILE WORLD. This is a grand editorial, and I personally am quite in accord with everything you say in it. . . . .

▼ With great interest I read your editorial on the Ellenbogen Bill and of the maneuvering that is going on to divide the industry with regard to it. I continue to feel that your editorial page—whether all your readers agree with it or not—must give a sense of leadership to the industry. No one can misunderstand where TEXTILE WORLD stands in a matter of industry responsibility and I am sincere when I say that I believe you have today one of the strongest editorial pages in the field of the technical press. . . . .

▼ I read with interest your editorial in the May issue. It hits the nail on the head as you always do. . . . .

▼ The editorial on the Ellenbogen Bill in your May issue was very pleasing to me, inasmuch as it was so full of common sense and did a good debunking job. My guess is that the decision on the Guffey Coal Act permanently eliminates the Ellenbogen Bill as a source of news and editorial comment for TEXTILE WORLD, although there are some people who are of the opposite opinion and apparently intend to keep on fighting for its enactment. . . . .

▼ I liked your treatment of the Ellenbogen Bill but it appears from the Supreme Court decision in the Guffey case that we shall no longer have to worry about that particular measure. . . . .

▼ I was very much interested in your editorial on the Ellenbogen Bill in your May issue of the TEXTILE WORLD. It seemed to me that it put the situation on exactly the right basis. There is not yet enough of a report on the Supreme Court's decision in the Guffey Act to tell just what effect it will have on the Ellenbogen Bill agitation. The National Labor Relations Board cases should tell the story, however. It looks now as if some of these should be reached in the Supreme Court early in the fall. . . . .

▼ Your leading editorial entitled "And the Answer is the Same in 1936" is intensely interesting and I am in full and hearty agreement with everything that you have expressed in it. Please accept my congratulations and appreciation. . . . .

▼ I think the editorial on the Ellenbogen Bill in your May issue is a corker; also the news item on the same subject. This last is a peach.

This Month and Next

This Month

Style Has the Stage

The Fashion Group, that powerful arbiter of style, is more closely identified with textile production and distribution than most of us realize. The story, in pictures and text, of the Group's mill activity indicates the growing importance of style in textiles. See pages 103 to 106.

A Long-Forgotten Rustle

The once familiar swish of petticoats is heard again in the land. But this time silk is not responsible for the rustle. What fiber is in the petticoat fabrics, how they are constructed, and how they are finished are explained on page 86.

Cotton Underwear

The great wheel of fashion persistently revolves, and now cotton underwear (as well as petticoats) is coming round again. Why and in what form are disclosed on page 92 by Paul W. Niles, whose article a while back on new swim suits brought in a number of requests for his advice on new lines.

Dotted Swiss

Many imitations of true dotted swiss are sorry imitations indeed, but some are better than others and, anyway, we Americans can't afford to operate the low-production swivel looms of Europe. On pages 82 and 83 Dr. Nelson discusses these matters.

Cotton Organizations

Two things which complicate the calculating of drafts, doublings, and other details of cotton-machinery organizations for specific yarns are the contraction in the yarns caused by spinning twist and the amounts of waste last at the various processes. Professor Merrill explains how to allow for these factors on pages 84 and 85.

Combining Weaves

An Englishman who says he has been following TEXTILE WORLD'S designing articles with much interest—and there have been many of exceptional merit, if we do say so—offers a few ideas of his own on pages 80 and 81.

Fugitive Tints

Throwsters, weavers, and knitters are finding an ever-increasing number of uses for tints for identifying yarns and fabrics. A mill man who knows his tints gives some valuable pointers on the selection and testing of these products. (Page 89.)

Adequate Humidity

A. W. Thompson shows how graphic analysis of spinning-room conditions enabled a large cotton mill to increase the breaking strength and uniformity of its yarn. (Page 90.)

We're Good Spinners

Or so we think until some of our yarn—worsted yarn, in this particular case—is analyzed for twist irregularities. A revealing article on page 93.

Sizing and Finishing

Research on starch and starch derivatives has thrown new light on warp sizing and cotton finishing procedure. F. G. La Piana discusses the most up-to-date mill practices and suggests ways in which certain of the present methods can be further improved. (Page 96.)

Plush Warps

Some plush manufacturers who turn to page 100 may find it possible to cut their beaming costs 50% and also greatly improve their warp tensions. Mr. Robertshaw has a new idea.

■

Next Month

Rates for Knee Length

A revision in piece-rate setting for full-fashioned hosiery operatives is made necessary in the many mills which are adopting the knee-length stocking. Concrete recommendations next month.

Drawing-In Drafts

Next month will be presented—for the first time anywhere, so far as we know—an ingenious chart which provides for ready reference all the best methods of entering a wide variety of rayon and silk fabrics.

Drafting Rollers

How to set them on cotton machinery is an old problem but still one of the most difficult and important to the overseer. Some experienced advice next month.

Ducks and Sheetings

Enthusiasts for Mr. Hoye's series of articles on the constructions, finishes, and uses of staple cotton fabrics who have felt teased in recent months by the single-page-an-issue basis on which the series has been run will have a feast next month, when four pages will be devoted to two of the most important of all classes of fabric—ducks and sheetings.

Knit Goods Processing

In July the dyer for what is probably the most up-to-date knitting mill in this country will give some pointers on cutting costs by use of proper equipment.

Three-Carrier Knitting

There are many conflicting ideas as to the proper method of throwing silk for direct knitting. Next month a man who is well known in the throwing industry will present his views.

Power-Plant Efficiency

Readers who have followed his articles know that N. T. Pef packs a lot of valuable information into the shortest possible space. "Efficiency—Possible and Actual" will be his subject in July.

Do You Know?

What construction of acetate taffeta is proving most popular for petticoats? *Page 86.*

For what purpose are broadcloths made stronger in filling than in warp? *Page 101.*

What is gained by setting the dial of ribbers ¼ in. above the cylinder? *Page 92.*

Neglect of what detail by the plant engineer will endanger a central power station? *Page 117.*

What is the main point to watch in selecting two weaves to be combined? *Page 80.*

What is the best way to measure spinning-twist contraction? *Page 84.*

How is the cotton-waste factor determined? *Page 84.*

Whether twist irregularities are more conspicuous in singles or in plied yarns? *Page 93.*

Whether true dotted swiss requires to be sheared? *Page 82.*

How to insure uniform tension in the beaming of plush warps? *Page 100.*

How many blows per inch should 1¼-in. cotton receive in a picker? *Page 118.*

What special precaution should be taken in selecting fugitive tints to be used for identifying rayon crepe filling which is to be used with acetate warps? *Page 89.*

What starch gives best results in sizing fine cotton yarns and what ones are suitable for coarse yarns? *Page 96.*

Ellenbogen Bill Dies From Guffeyitis

NOT only did the Guffey Act take sick and die (by order of the Supreme Court May 18) but it brought on the death of its ambitious imitator, the Ellenbogen Textile Control Bill. Practically everybody realized this as soon as the decision was announced, but naturally there were a few who didn't admit it.

Of more importance to industry generally is the probable effect of this decision upon the Wagner National Labor Relations Act. It is generally felt that a decision adverse to that act is sure to come when the test finally reaches the Supreme Court.

Despite rumors that the Guffey decision had precipitated an epidemic of wage cuts in textile mills, no justification for these charges has been found.

The death of the Guffey Act not only afforded welcome relief to the textile industry, but also involved indirectly a little comedy. Representative Ellenbogen, for example, stated after the decision that he was convinced that "if the bill does not become a law now, the employers of the country will come begging for it." "They will stage a march on Washington just as a great many industrialists did when the Supreme Court invalidated the code-making powers of NRA," he predicted.

Duty on Japanese Cottons Cut 50%

WITH unexpected suddenness President Roosevelt, on May 21, ordered an increase in duty of approximately 50% on controversial cotton textile imports from Japan, effective June 20. This action followed an announcement from the State Department that negotiations with Japan for a satisfactory gentleman's agreement had completely broken down. The increases, covering certain types of bleached, unbleached, and dyed or colored cotton cloths, were recommended by the Tariff Commission following an investigation of comparative costs of production, as authorized by the Senate.

Initial reaction was that the Administration had taken an important step to relieve the pressure of competition from Japan in our markets, although there is a feeling among many that only by quota restriction can the invasion be stopped. Frank I. Neild, president, National Association of Cotton Manufacturers, called it a step in the right direction but said further relief is necessary and is possible under the authority given the President in the Soil Conservation Act. Senator Jesse H. Metcalf, who introduced into the Senate the resolution authorizing the Tariff Commission's investigation, expressed disappointment stating that the increase was "wholly inadequate and will afford little or no relief from the flood of imports now coming into this country, largely from Japan."

Full extent of Japanese domination of the American market for foreign cotton goods was revealed by the Department of Commerce May 28, when officials disclosed that Japan is able to undercut prices of other nations sufficiently to sell American importers 58% of all cotton cloth imported during the first four months of this year. The same figure showed, however, that only 27% of the total amount paid for imported cloth during this period went to Japan. That is, foreign exporters of 42% of goods marketed in this country received 73% of all the money paid out. This situation was the direct cause for President Roosevelt's recent boost in tariff rates upon certain types of Japanese cloth.

To Liquidate Textile Equipment

A PLAN to liquidate obsolete and obsolescent equipment in the textile industry has been developed by Walter E. O'Hara, treasurer of the Textile Machinery & Supply Co., Fall River, Mass. The plan contemplates the elimination of some three or more million cotton spindles, and a certain amount of wool machinery.

Roughly, the idea as outlined appears to be similar to that employed by General Cotton Corp., and embraces the purchase of plants which are in weak financial and physical condition, the sale of the worth-while equipment from those plants, and the scrapping of the remainder. It has been that corporation's experience that the receipts from the worth-while machinery exceeded the purchase cost of the plants themselves, and that a modest profit was made on the over-all operation of the enterprise. It is understood that Mr. O'Hara has been assured of financial backing from individual textile manufacturers in the North and South so that ample funds for the development of the plan will be available.

Sharp reduction in the number of cotton spindles has already been effected in recent years. According to data released by the Association of Cotton Textile Merchants, there were in place at the beginning of this year 29,253,444 spindles, as against 37,871,936 ten years earlier—at the start of 1926. It is the opinion of many students of the situation that continued elimination of the unfit is not only desirable but inevitable. According to Mr. O'Hara's plans, it is expected that at least 3,000,000 additional spindles will be scrapped by the end of 1937. Since much of the previous liquidation has been in the North, it is felt that a considerable part of the new activity will be in the South. It is understood that textile machinery manufacturers as a whole, instead of being opposed to this type of plan, see in it a constructive method whereby the position of the industry to which they sell is improved, the used-machinery situation kept in hand, and opportunities for replacement developed as the pressure on unfit organizations becomes keener.

Mr. O'Hara has devoted the last three years to the building and operation of the Narragansett race track in Pawtucket, R. I., which has been a remarkable success. He is now planning to turn again to the textile situation. Through his company he had liquidated a considerable amount of spindleage in New England prior to his partial retirement to develop the Narragansett Park enterprise.

A group of textile executives who posed for our photographer at the Savannah meeting of the Cotton Manufacturers Association of Georgia (see story on page 76). Left to right they are: J. H. Cheatham, J. W. Kirksey, W. N. Banks, T. M. Forbes, J. C. Gall, Dr. C. T. Murchison and Albert T. Matthews.

Code Standards Held, Reports George Sloan

VOLUNTARY maintenance of improved wage and hour standards by industry generally was revealed in a cross-section survey made public May 27 by George A. Sloan, chairman of the Consumers' Goods Industries Committee. Mr. Sloan's survey of many important industries was undertaken to determine the costs of working conditions during the last year, and covered a substantial proportion of the country's manufacturing employers.

"American industry generally," said Mr. Sloan in releasing the results of his inquiry, "has given an inspiring example of its determination and ability to maintain and improve wage and hour standards."

Among the textile reports included in the survey were those from Arthur Besse, president of the National Association of Wool Manufacturers; Sidney P. Munroe, assistant to the president of the Cotton-Textile Institute; C. Whitney Dall, president of the National Rayon Weavers Association; and Herbert Gutterson, president of the Institute of Carpet Manufacturers of America. All reported a high degree of conformance to code standards. Of particular interest was the comparison made of current employment with that of the 1929 period. Mr. Besse reported average employment of 155,666 in the first quarter of 1936 as compared with 150,000 in 1929; Mr. Munroe reported 407,000 in December, 1935, as against 406,000 in December, 1929; Mr. Dall reported approximately 130,000 employed in his industry today, or "nearly twice the number employed in 1929."

Process Tax Out; Windfall Tax Milder

ALTHOUGH our readers will undoubtedly know much more about the new tax law when they get this issue than we do now (June 8) since we hope it will be out of the way by then, we feel it our duty to pass on the following as the latest word from our Washington office before we went to press:

"Despite Presidential urging, processing taxes are definitely out of the picture. Windfall taxes are certain to be included in any law enacted but the House provisions have been amended in important particulars in an effort to relieve hardship. Windfall taxes collected may not exceed the taxpayer's net income for the entire year. Excluded from the tax are articles in taxpayer's stocks on the day after termination of tax. Any income from articles with respect to which the taxpayer has reimbursed his agent for the excise tax burden also is excluded as is any income with respect to which some special statutory provision for refund exist, as in the case of exports. Annual averages may be used instead of specific transactions. Representative period for termination of average profit margin has been lengthened from five to six years. Payment may be postponed for as long as three years."

British Rayon Week For Name and Sales

NATIONAL Rayon Week held in England May 18-23 had a two-fold objective: to get the public to use the generic term "rayon" instead of "artificial silk," and to increase the sales of rayon. As is well-known in this country, England has been much slower in the adoption of the new term than has the United States. A large amount of money has been spent by the majority of producers on advertising in both the daily and trade press. Such slogans are used as: "Rayon is what you used to call artificial silk"—or "Its name was changed because it isn't silk and it isn't artificial." As a counter-irritant the leading acetate company advertised: "Celanese is Celanese and should never be confused with rayon." On the whole however considerable work has been done in establishing the new name. In addition to the advertisements, window displays and special supplements of the daily papers were features of the week.

No Government assistance was back of the event, aside from the presence of a leading Board of Trade official at the banquet held at Grosvenor House under the chairmanship of Lord Derby. The banquet did much to promote the success of the week and was remarkable, among other things, for one of those rare speeches which the industry gets from Samuel Courtauld who comes into the public eye infrequently but did so for National Rayon Week.

Massachusetts Tackles Taxes

THAT the textile industry of Massachusetts and manufacturing interests in general are receiving greater consideration is evident in the revised legislation governing the taxation of machinery that was under consideration this month.

The amendments take away from cities and towns the privilege of taxing machinery, but leave personal property and real estate to the localities. To make up for the loss in revenue, the State will reimburse the cities and towns according to an agreed-upon basis. Part of the funds for such reimbursement will be secured by a State tax of $5 per $1,000 valuation of machinery (present local rates average about $35), and the balance is expected to come from increased income-tax payments arising from the stimulation given to business, although payments to cities and towns will be made from general State funds.

National Conference of Textile Technicians

THE U. S. Institute for Textile Research, Committee D-13 of the American Society for Testing Materials, and the American Association of Textile Chemists & Colorists have been invited to join the Textile Division of the American Society of Mechanical Engineers in sponsoring a National Textile Technical Conference, to be held in Baltimore, Md., in November, to honor the 25th anniversary of the beginning of rayon manufacture in this country. Representatives of each of these technical organizations have been asked to attend an organization meeting to be held June 15 in New York for the purpose of choosing a joint committee to arrange the program. Tentative plans call for a two-day session at the Baltimore meeting comprising technical discussions of various problems of common interest to engineers, chemists, and other technicians; visits to one or more rayon plants; and a banquet at which several short outstanding speeches will be given by men active in the development of rayon yarns and fabrics.

This and That

WALTER C. TAYLOR, of the Textile Labor Relations Board, and John Edelman, of the American Federation of Hosiery Workers, are representatives for the United States employers' and labor delegations, respectively, at the International Labor Conference which convened at Geneva, June 4. It is stated that a 40-hr. week in the textile industry will be considered at that conference. . . . .

A law passed by the Rhode Island Assembly before its adjournment requires the installation of pick clocks on looms by Jan. 1, 1938. . . . .

Textiles played an important part in equipping the new British steamship, "Queen Mary," virtually every fiber being represented in one or more forms on the vessel. Distinctive constructions are seen in draperies, upholstery, etc., in rayon, woolens and worsteds, silks—while cotton, most versatile perhaps of all, is represented both in the modest quarters and in the smarter cabins of the boat. In honor of the vessel's maiden trip, a new color, "Queen Mary Rose," was announced by the Textile Color Card Association of the U. S.

Compliance Drive

Launched by cotton textile industry—Murchison outlines possible approach

A VIGOROUS drive to "reclaim" the small percentage of cotton manufacturers who have departed from code hours and wage standards has been planned in the industry as the outcome of a series of meetings held during the last month. Tentatively, the idea is to determine the present status of compliance by the questionnaire method, and to re-circulate the pledge of voluntary agreement to continue the basic standards. Final details of the plan had not been developed as this issue went to press.

Endorsement of the compliance drive was given at a meeting of the Board of Government of the American Cotton Manufacturers Association at Charlotte, May 25. It was stated at that time that the A. C. M. A. would work with the Cotton-Textile Institute, in this effort, and local support would be added through State associations.

Still another constructive influence exerted last month was the movement—started by Joshua L. Baily & Co.—to include in invoices assurance to buyers that the merchandise covered has been made under standard wages and hours conditions.

The month was also marked by plain talking on the part of Dr. Claudius T. Murchison, president of the Cotton-Textile Institute, at the annual conventions of the Cotton Manufacturers Association of Georgia and the Cotton Manufacturers Association of South Carolina, as well as before the A. C. M. A. Board of Government meeting.

Dr. Murchison outlined four possible lines of approach worthy of consideration by the industry for such action as it might want to take.

One of the four points mentioned by Dr. Murchison was an immediate one. He urged that every company which has not signed the voluntary agreement developed by the Institute for maintenance of code standards do so at once. He pointed out that practically all in the industry are in agreement in wanting the fundamental standards of the code retained and that consequently the signing of this pledge is merely a crystallization of that attitude.

The other three points brought up for discussion were more of the long-term type and included:

1. Development of uniform State laws in order to lay a "bottom" to certain phases of the industry's problems such as the hours of the individual worker and possibly machine-hours; also possibly to include minimum wages.

2. Securing active cooperation of Federal Trade Commission in such a way as to protect the industry from difficulties arising out of technical violation of anti-trust laws in attempts to protect manufacturers and employees from wage and hour chiseling on the part of a minority. All the F. T. C. would be able to do, he pointed out, would merely be to "hold up *our* hands in what we want to do."

3. Setting up some sort of machinery to take care of the marketing problem. Dr. Murchison pointed out that the complaint is often heard that, even if we set up a sound production plan, it is impossible to get a decent price anyway. Despite the difficulties involved, especially in connection with the anti-trust laws, he suggested that something might be accomplished along the lines of a Textile Stabilization Corporation to cooperate with both mills and selling agents in a plan of price stabilization. He emphasized the fact that it is necessary to have the cooperation, not the jealousy, of selling houses—and added that from the standpoint of technical performance, the present organization is satisfactory.

The industry must turn its mind inwardly to its own internal problems, stated Dr. Murchison. During the next several weeks, in his opinion, it is imperative that the industry put over the voluntary agreement in order that it may serve as a great sustaining influence until the long-range program can be gotten under way. "If you want leadership," he concluded, "I am ready to try to supply it and to fight your battles with you."

Georgia Meeting for Code Standards

OBSERVANCE of standards comprising 40 hours per man per week and a corresponding minimum wage of $12 per week was recommended in a resolution passed by the Cotton Manufacturers Association of Georgia at its annual convention held at the General Oglethorpe Hotel, Savannah, Ga., May 21-22. This resolution provided further "that the effort of the Cotton-Textile Institute to obtain voluntary compliance with the above-mentioned standards is hereby endorsed, and the members of this association are urged to signify to the Institute their willingness to comply without delay." This was the association's answer to the plea made by Dr. Claudius T. Murchison, president of the Institute, for immediate ratification of the voluntary agreement, as noted above.

In another resolution the association expressed its belief in "decentralized and local government as opposed to the creation of an authoritarian national state" and its opposition to governmental experiments "which tend to the establishment of a national bureaucracy." In a third resolution, increased textile importations were cited, particularly as to their effect toward reducing American standards of living, and the association urged the Government to take steps "to insure a competitive market in this country for American textile products produced under prevailing American costs."

In addition to producing these actions, the convention was noteworthy for the excellent addresses included in the program and for the entertainment features.

The first session was opened with an address of welcome by Thomas Gamble, mayor of Savannah. J. A. Miller, executive vice-president of Exposition Cotton Mills, Atlanta, responded.

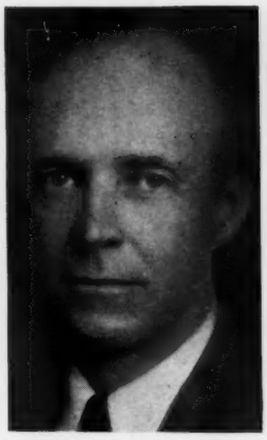
Reviewing developments of the last year relative to the textile industry, J. H. Cheatham, president of Georgia-Kincaid Mills, Griffin, and retiring president of the association, said that the textile industry in the South is facing a crisis, and that its position is similar to that of the New England industry of 25 years ago. He cited as dangers the Wagner bill, the Ellenbogen bill, the windfall tax measure, Japanese competition, irresponsible labor leaders and high taxes.

"Here in Georgia," he said, "we have approximately $214,000,000 invested in mills. We employ 60,000 people and our payroll amounts to $45,000,000 annually. It, therefore, seems to me that this industry is a great asset to Georgia, and should be encouraged instead of hampered." He urged the members, as individuals, to contact their various law makers and acquaint them with the facts.

John C. Gall, associate counsel, National Association of Manufacturers, gave a detailed analysis of recent legislative developments which have a bearing on the textile industry. "The Guffey decision was more important to business than the Schechter decision," he declared, explaining that had the Guffey bill been sustained, the Ellen-

Donald Comer president of A.C.M.A.

W. N. Banks, elected president, Cotton M'frs. Assn. of Ga.



S. Marshall Beattie, re-elected president, Cotton M'frs. Assn. of S. C.

bogen bill, of similar nature, would have been sure to have become law. This bill, he said, will be abandoned for the time, despite efforts on the part of labor leaders.

The final address of the morning was on "Modernized Welfare Work Among Textile Operatives," by J. W. Kirksey, Jr., vice-president of Provident Life & Accident Insurance Co., Chattanooga, Tenn. Mr. Kirksey strongly advocated employment of outside agencies by the mills for welfare work in order to avoid being charged with paternalism.

The business session Friday morning consisted largely of routine reports and election of officers. W. N. Banks, president of Grantville Mills, Grantville, was elected president, succeeding Mr. Cheatham. Albert T. Matthews, vice-president of Martha Mills, Thomaston, was named vice-president but for personal reasons did not accept the office. He was made an ex-officio member of the board of directors for life. Paul K. McKenney, of Columbus, was elected vice-president. Fuller E. Callaway was made treasurer. New directors include J. A. Miller, W. D. Anderson, Jr., Julian Hightower and R. O. Arnold.

The following reports were submitted: treasurer's report, A. T. Matthews, Thomaston; secretary's report, T. M. Forbes, Atlanta; traffic department, C. T. Kilgore, Atlanta; traffic committee, Frank Bradley, Columbus; office executives division, I. A. McDaniel, Cartersville; cotton division, A. T. Jenkins, Thomaston; electric power rate committee, Paul K. McKenney, Columbus; State engineering experiment station, Norman E. Elsas, Atlanta; resolutions committee, R. Hill Freeman, Newnan; nominating committee, Clifford J. Swift, Columbus.

At the annual banquet honor guests included J. W. Kirksey; Scott Roberts, president of the Cotton Manufacturers Association of Alabama; Mr. and Mrs. Albert Matthews; Dr. Claudius T. Murchison, president of the Cotton-Textile Institute; Mrs. J. H. Cheatham, Mr. and Mrs. W. N. Banks, John C. Gall, and W. M. McLaurine, secretary of the American Cotton Manufacturers Association.

Golf prizes were won by the following: blind bogey, Fred W. Howe, Jr.; low gross for members, R. K. Whittier; low net for members, W. H. Huff; low gross for non-members, E. G. Merrett; low net, Robert W. Philip; booby prize, H. O. Hall.

Retiring-President Cheatham was presented with a beautiful silver tray.

S. C. Convention Re-elects Beattie

EVEN though the program of higher wages and shorter hours, in reason, has a great appeal for us all, we must not lose sight of the inevitable result: higher costs," warned S. Marshall Beattie, president of the Cotton Manufacturers Association of South Carolina, at the annual convention of that association at High Hampton Inn, Cashiers, N. C., May 22-23. "These high costs," he said, "subject us to a ruinous competition with foreign manufacturers. Our foreign markets are drying up as fast as new sources of supply can be found, and now foreign manufacturers, particularly the Japanese, are taking away our own market at home, quoting prices which average around 25% below our costs.

"It appears remarkable in the face of this grave situation, to think of forcing a further increase in manufacturing costs on our domestic mills by proposing additional restrictive legislation. . . . Americans should call a halt on such a trend and defend American industry for the sake of present and future American workers."

Mr. Beattie was re-elected president and the following other officers were also re-elected: A. F. McKissick, vice-president, and William P. Jacobs, secretary-treasurer. Only one change was made in the executive committee, Allen Johnson replacing E. M. Johnston. The other members of the committee are: Capt. Allison A. Smyth, J. C. Evins, E. F. Woodside, T. M. Marchant, W. S. Nicholson, J. E. Sirrine, F. W. Symmes, W. P. Hamrick, J. A. Chapman, Jr., L. O. Hammett, Emslie Nicholson and A. E. Jury.

Speakers at the sessions included Dr. Claudius T. Murchison, president of the Cotton-Textile Institute; Neville Bennett, chairman of the Ways and Means Committee of the South Carolina House; and J. Roy Jones, Commissioner of Agriculture, Commerce and Industries in South Carolina. The work of the association touching a wide range of subjects was covered in the report of Mr. Jacobs, the secretary-treasurer.

A golf tournament was held on the second afternoon of the convention, and an informal banquet that night.

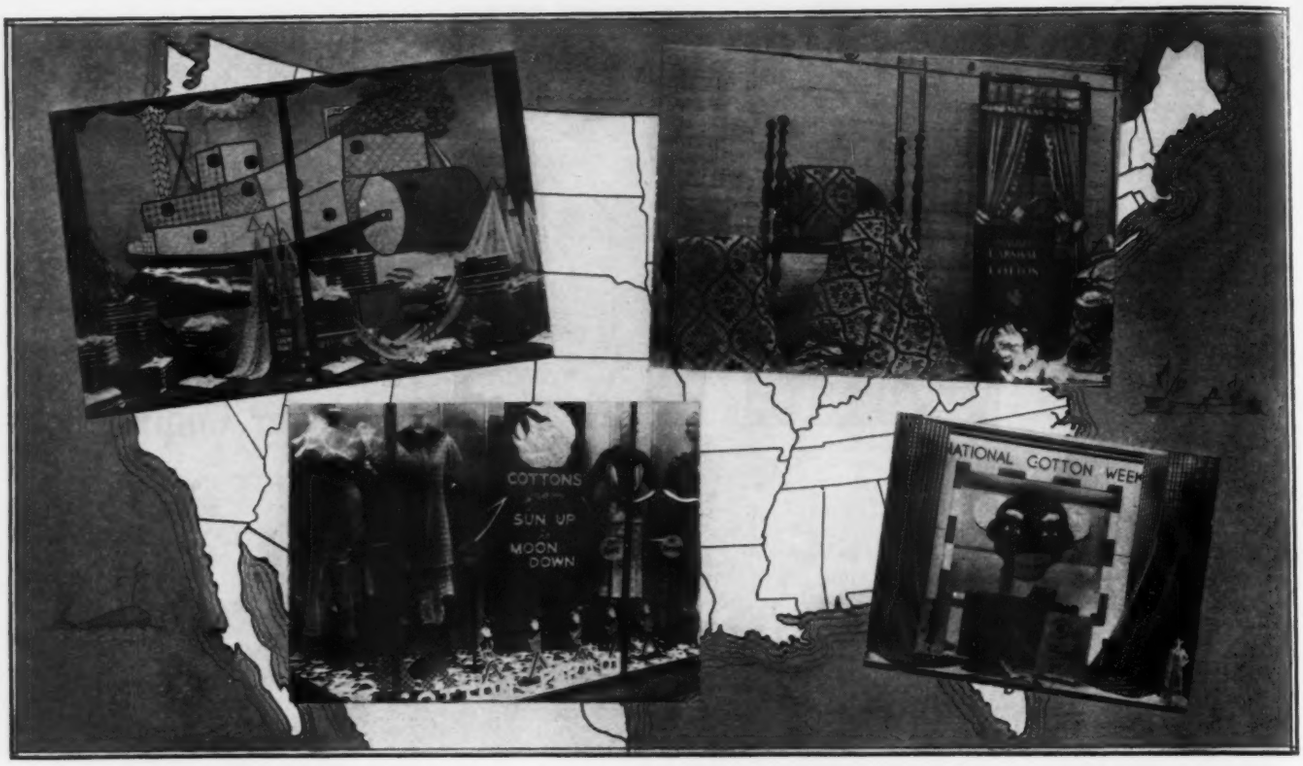
A. C. M. A. Heads to Drive for Compliance

A CONCERTED drive to secure compliance to code standards from the small minority not now conforming was planned at a meeting of the Board of Government of the American Cotton Manufacturers Association at Charlotte, N. C., May 25. Thus Donald Comer, recently-elected president of the association, moved to put into action the resolution passed at the Pinehurst meeting recommending continued observance of wage and hour standards of the codes. With more than 90% of the industry in line, the objective now is to bring the other 10% back into the fold.

Mr. Comer, who presided, stated that the plans of the association were set up to "reclaim" those mills "which have deviated from any provision believed to be for the welfare of the industry and the people who depend upon it for employment or for business." These plans are to be made effective through the cooperation of the various cotton manufacturers' associations and the Cotton-Textile Institute. Dr. C. T. Murchison, president of the Institute, reported on the status of conformance, at the Charlotte meeting.

Those present included, in addition to Mr. Comer and Dr. Murchison: R. E. Henry, Greenville, S. C., first vice-president of the A. C. M. A.; Allan Little, Alexander City, Ala.; A. W. McLellan, New Orleans, La.; R. R. West, Danville, Va.; Harvey W. Moore, Charlotte, N. C.; Thomas H. Webb, Concord, N. C.; Walter Montgomery, Spartanburg, S. C.; George S. Harris, Charlotte, N. C.; B. B. Gossett, Charlotte, N. C.; S. M. Beattie and F. W. Symmes, Greenville, S. C.; M. P. Orr, Anderson, S. C.; George M. Wright, Great Falls, S. C.; E. O. Fitzimmons, Charlotte, N. C.; W. M. McLaurine, secretary-treasurer of the A. C. M A; Landon Thomas, Augusta, Ga.; J. A. Chapman, Jr., Spartanburg, S. C.; and A. M. Dixon, Gastonia, N. C.

Officials of the A. C. M. A. met later, on June 2, in Charlotte and appointed committees to work for reforms by seeking a protective tariff on jute, controlling Japanese imports by quota, etc. All members of the policy committee were reappointed with Charles Cannon as chairman. The cotton committee with A. K. Winget as chairman will push net weight sale of cotton. Cason Callaway heads the group to work for tariff on jute.



National Cotton Week . . .

40,000 retailers take advantage of weather, bonus spending and promotion trend

MORE than 40,000 retailers, large and small, scattered throughout the United States, were estimated to have participated in National Cotton Week, June 1 to 6. This nation-wide promotion, which has grown by leaps and bounds since its inception several years ago, was held a little later than usual this season. There were several reasons for this. First, early June weather is ideal for cottons as the consumer turns his attention to coolness and comfort. Second, from a merchandizing standpoint, the later date is expected to extend the normal cotton goods selling season through July, and thus minimize, if not eliminate, the former tendency to destructive price cutting. Moreover, the influence of Cotton Week promotions was at its height when payment of the Veteran's Bonus released a new flood of cash. While it is too early to tell just what effect will be felt from the bonus payment, it is expected that cottons will receive their share of bonus spending during July and August.

A truly national mobilization of advertising and selling forces this year got behind National Cotton Week and helped make it one of the most successful promotions of its kind ever staged. To emphasize the power of these forces, a roll-call reveals that the vast army of retailers, including the great chain store and mail order organizations, metropolitan department stores and cross-roads merchants, women's and children's specialty shops and accessories shops, and men's wear shops, are allied this year with New York resident buying offices, cotton converters, wholesale dry goods houses, soap and soap-product manufacturers with their thousands of cooperating retail distributors, washing machine and sewing machine manufacturers and their thousands of retail dealers, mattress manufacturers, commercial laundries, commercial pattern companies, railroads, hotels and a host of others.

The return of F. W. Woolworth Co. to the list of participants is an impressive bit of evidence of the continued expansion of National Cotton Week's importance. For the last several years, the Woolworth organization, with its 1,900 stores, had not planned any Cotton Week promotions, but the Institute this year was called on to supply between 15,000 and 20,000 official display posters for all units of the company.

Official posters were noted in the windows of neighborhood shoe merchants and automobile dealers, two important industrial outlets for cotton. Automobile tires alone last year counted for 526,315 bales, whereas the rubber industry as a whole utilized some 642,103 bales. An increasing amount of cotton is going into rubber footwear and rubberized fabrics.

As usual, the consumer and trade press cooperated to the fullest. For example, the Hearst organization put special emphasis on National Cotton Week possibilities in the June advertising almanac furnished to all retailers in cities served by the Hearst newspapers. Leading women's magazines, such as *The Woman's Home Companion, Ladies Home Journal, Harper's Bazaar,* etc., featured cottons in the June and July issues.

Other promotions included radio programs, style shows, cotton carnivals, window displays and movies.

Textile Personalities

ALBERT T. MATTHEWS' father —an outstanding and progressive supply merchant of Thomaston, Ga.— had little faith in his son's future. The boy disliked to stay in the store; swapping goods for money didn't seem to appeal to him. When he was missing —which was often—he could be found at some cotton gin, saw-mill, planing-mill, or shop—and always had a plausible excuse for being there.

So it's easy to understand why, when the Thomaston Cotton Mills were first promoted, Mr. Matthews immediately severed his connection with the mercantile business to go where the wheels would eventually turn. Furthermore, his love for just this kind of thing which carried him there in the first place has kept him in this one industry ever since. After 30 years with the Thomaston Cotton Mills—being vice-president for a number of years—he became associated with the B. F. Goodrich Co. when the Martha Mills, which were built under his supervision, were purchased from the Thomaston Cotton Mills by that company.

He is the executive in charge of the mills.

Mr. Matthews' principal hobbies are swimming—and the development of the natural surroundings of his home on Crystal Hill. He has a whole family —three daughters—"in the textile mill business," as he expresses it. One—Mrs. Sarah Matthews Britt—is director of the personnel department of Martha Mills; another is married to the head of the cotton department of those mills; and the third is married to an executive of the Atlanta Woolen Mills. "She's just another lint-head," said Mr. Matthews of Mrs. Britt. And he said it proudly.

We are told that Mr. Matthews has one outstanding characteristic: he doesn't worry and never has. From personal observation, we believe this is one of the rare cases where that statement may be made in complete truth.

THE distinguished looked gentleman with the cane and the very British attitude (to say nothing about being posed up against the Town Hall in Manchester, England) needs no introduction to textile men but, on the chance that some non-textile men read this issue, it should be stated that he is Edward T. Pickard, chief of the Textile Division of the Bureau of Foreign & Domestic Commerce. Ed has his roots in this business, having had his first job in the textile market with Amory, Browne & Co., and then with Minot, Hooper & Co., being sent to Manchester, England, in 1913 with George Nichols to open a branch office. From 1917 to 1919 he was with the War Trade Board in Washington, in charge of cotton goods. Association with the Textile Manufacturers' Alliance (1919-1921) brought him a trip around the world establishing branch offices and agencies for American textiles and products. From 1921 to date he has been the "works" in the Textile Division as indicated above; from 1930 to date, secretary and assistant treasurer of the Textile Foundation. In addition to the trip around the world he has visited most countries in Europe on six occasions; and South America and West Indies twice. As might be suspected from all this, travel is one of his hobbies—and a close second is running a vegetable garden at Kent, Conn., where the Pickard family goes for the summers. He is celebrating his 25th wedding anniversary this year and has two children—a daughter at William and Mary and a son at Princeton.

We don't know how the other division chiefs in the Bureau stand with their industries but we do know that Ed has the friendship and respect of his.

THERE must be something about this textile business that is attractive, despite the harsh words that are uttered from time to time. At any rate, George Hall Waterman is still at it and he is the great-great-grandson of the Samuel Slater who started the first cotton mill in the country at Pawtucket, R. I., in 1790. Mr. Waterman himself is a builder, but he confines his activities to building an addition, a garage or a hen-house at his 100-acre farm in East Greenwich, R. I., acting as his own architect and carpenter. The farm, where he raises sheep, is Mr. Waterman's principal source of recreation and whenever he isn't selling yarn you will find him there.

A native of Rhode Island, Mr. Waterman attended Brown University and started off in the cotton yarn brokerage business with Lincoln Grant in Boston, later going to New York with S. T. Bausher. In the 1900s he joined Wm. Whitman & Co. and remained with the company until 1928, when the decision was made to give up the outside carded yarn business. Mr. Waterman then joined in forming Waterman Currier & Co., Inc., with headquarters in Boston, to take over these accounts. Although the company now handles worsted, mohair, and rayon yarns also, it is the cotton-yarn division that really claims him.

VARIED FIGURE DESIGNS

Obtained by combining two contrasting weaves for production on dobby looms

MANY figured cloths now on the market are made by using only two contrasting weaves, one for ground and the other for figuring. These are woven, in the majority of cases, on dobby looms; and the ornamental effect is obtained by complicated drafting.

First of all, two weaves which will eventually appear as ground and figure must be chosen. The main point to watch in making this choice is to see that as many ends as possible in both weaves have the same interlacings. For instance, weaves *A* and *B* are the 2/2 twill and 2/2 basket weaves, and all the ends used interlace in two-and-two order. As twill and basket are splendid contrasts, they are ideal for our particular purpose. The development of these two weaves in drafted effects will be described.

Combining 2/2 Twill and Basket

On examining *A* and *B* it will be noticed that the interlacings and footing of the first and third ends of the twill weave are identical with the first and third ends of the basket, and this factor is the basis of more elaborate designs. The second and fourth ends also interlace in two-and-two order, and the method of marking in weaves *A* and *B* clearly illustrates how variations in the footing of these ends determine whether the weave is made twill or basket.

From the foregoing we find that, in a combination of these weaves, the first and third ends can be drafted on to two harnesses. To complete the weave, two harnesses are required, and the total of four harnesses can be considered as one unit of figure. A 16-harness dobby would therefore employ two harnesses for ground and seven groups of harnesses for figuring.

Example *C* illustrates a portion of a simple design made on the foregoing lines with a six-and-one-twill motif shown at *D*. Each square of *D* is enlarged to 8 x 8 in design *C*, with a ground of basket and a figure in twill which corresponds to the full squares in the 6/1-twill motif.

A further development can be made which doubles the number of groups available for figuring. In this case the former arrangement of drafting is retained for the even ends, but the number of harnesses necessary to complete the weave on the odd ends is reduced from two to one. The motif can now be on fourteen ends, because we have fourteen harnesses at our disposal after allocating two for ground. A specimen design is given at *E*; and, although these weaves do not contrast so greatly as the twill and basket, this disadvantage is balanced by the increase in figuring capacity.

In both the examples described every end weaves mainly in two-and-two order. This is a great help in making a level cloth and allows the different weaves to show to their best advantage.

Another End-and-End Arrangement

The next example still keeps to the end-and-end arrangement in the drafting but is far more ambitious in design. The main two weaves concerned are the ordinary 1/1 double plain and the 3/1 twill illustrated at *F* and *G*. The footing of the odd ends in an enlarged drafted effect is given at *H*, and the method of marking in *F* and *G* shows clearly how this arrangement is made into double plain or twill, depending upon the character of the even ends in the design. In either case two more harnesses are necessary to complete the weave and, as in the case of the twill and basket, the required weave is obtained by altering the interlacings of the even ends.

Illustration *J* shows how these "key" ends are able to change the design from double plain to twill by altering their footing every eight picks. The group of eight ends and picks is taken as a unit in building large designs, and weave *J* is a portion of an extended 6/1-twill motif. This design is specially adaptable to variations, and quite simple alterations in the interlacings of the even ends enable contrasting effects to be made.

Variations on 3/1-Twill Ground

Illustrations *K* to *K4* show possible variations of figuring upon a 3/1-warp-twill ground. In *K* the ends on the even shafts are allowed to float underneath the cloth. This is a very good contrast and permissible as long as the figuring units do not extend over too many picks and thereby make a flabby cloth through lack of interlacings. The remaining variations are simple and require no comment.

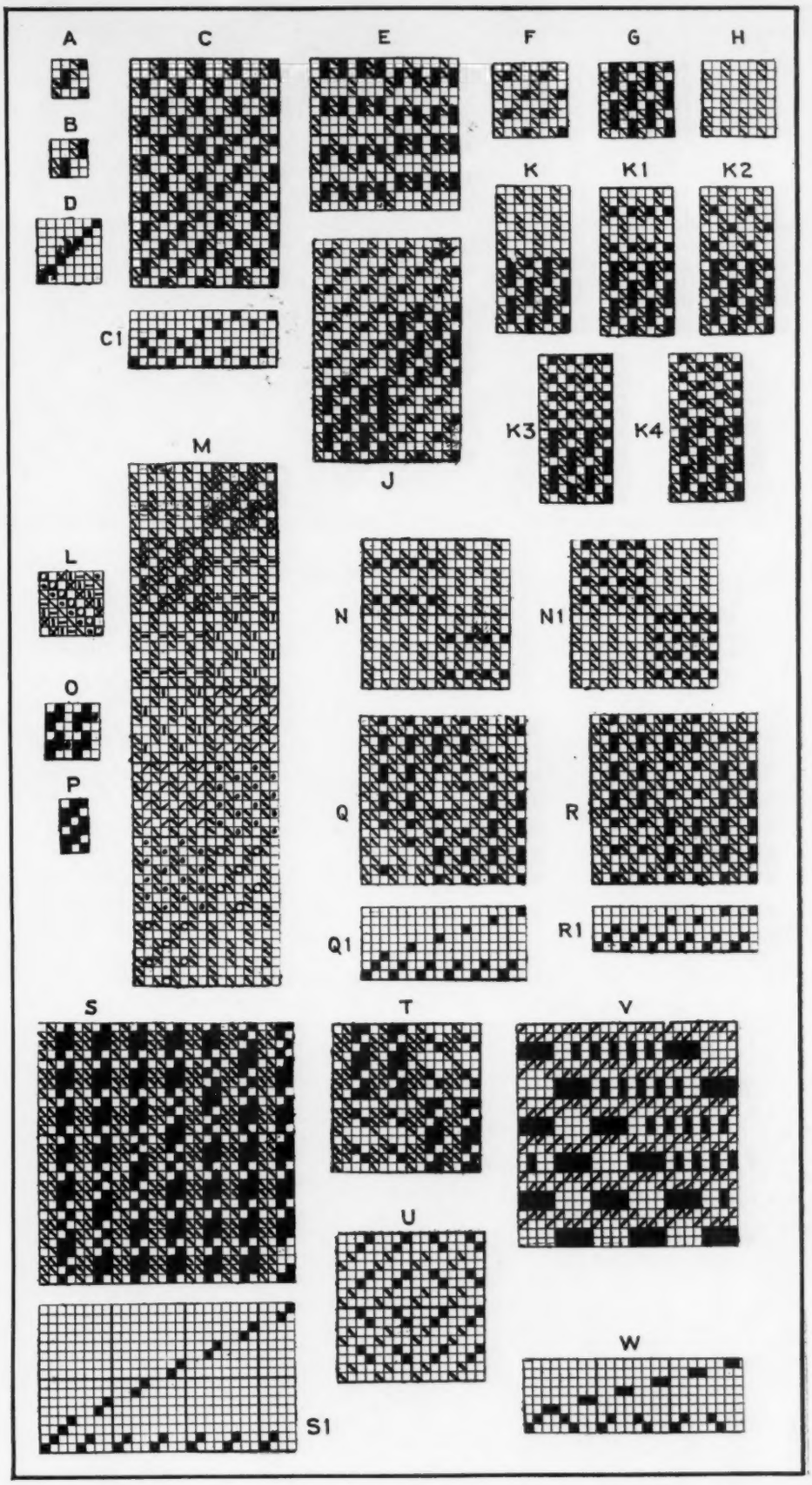
From the foregoing it will be realized that a figured design can be made which contains no less than seven different weaves. Thus our seven-end motif weave can have each small square enlarged to 8 x 8 and a different weave inserted picks way in every unit, as illustrated by the different markings in *L*. The groups are then twilled as shown in *M*, which gives the full repeat picks way and the first two groups of ends. The odd ends of this design can be made to double their figuring capacity, and illustrations *N* and *N1* show types of weaves used to accomplish this end. Once again the length of warp floating on the back must be kept under control, and the more tightly interlaced weave should be used for that portion of the figure which occupies most area in the design.

At this point it must be stressed that where weaves with widely contrasting interlacings are used together, especially in stripe form, it may be necessary to use a beam and roller in weaving in order to regulate the tensions.

Two-and-One and Two-and-Two

In the foregoing examples, the ends common to the two weaves used in one extended design were drafted with "key" ends in one-and-one order. A case will now be considered which is developed in 2/1 order. Illustrations *O* and *P* give the 2/1 double plain and the 2/1 twill weaves. In each design the first and second ends are alike, so that if these are drafted upon two shafts all across the warp, large repeats of figure can be obtained by varying the interlacings of the third and sixth

By A. Bower



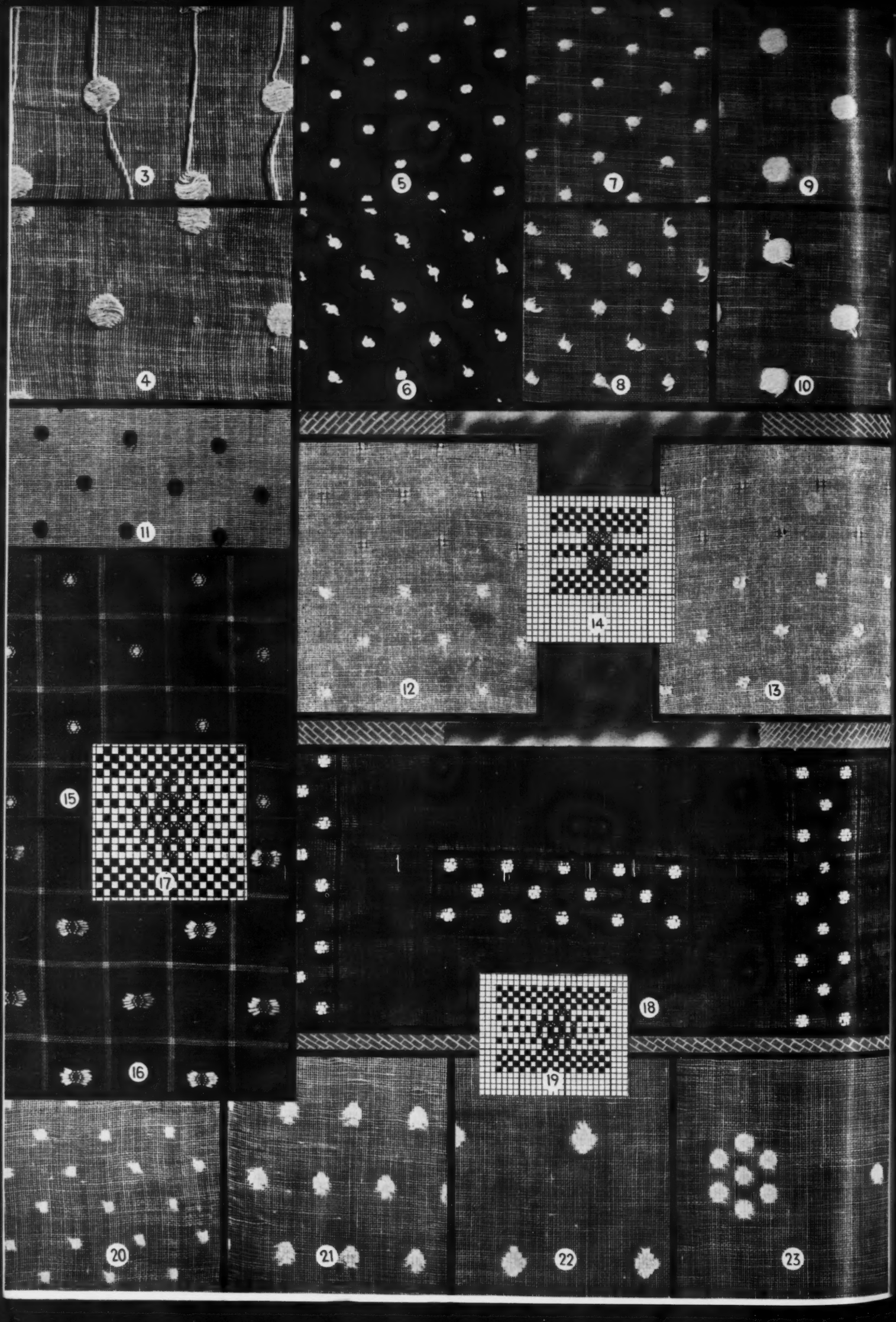
ends. Again the 6/1-twill motif is enlarged and a portion of the full design given at *Q* with draft at *Q1*. Illustrations *R* and *R1* illustrate the first groups of an enlarged 13/1-twill motif when only one harness is needed to complete the weave of the "key" ends. In this case the double plain weave is sacrificed in order to increase the figuring capacity from seven groups to fourteen. The substituted weave, although not so definite in character as the original, is sufficient to form a contrast with the twill ground.

The next stage of our discussion is concerned with ends drafted in 2/2 order; that is, alternate pairs of ends drafted on the first and second harnesses all across the warp and the remaining pairs using up the other harnesses for figuring. A simple style is shown at *S* and *S1* with one line of twill running across a bedford-cord ground.

A planned rearrangement of the figuring harnesses to make chevrons and herringbones produces very interesting effects, owing to the definite line of demarcation between the ground and figure. *T* and *U* are further examples of the 2/2 order. In the former the 2/2 double plain is shown to great advantage on a ground of 3/1 warp twill. No stitching is required, as the pocket made by the double cloth forms part of the contrast in the designs. In *U* the 3/1 sateen weave is used for figuring, and its interlacings are identical with those of the ground weave. This design forms a level cloth with no complications due to unequal tensions.

Interesting Weave Contrast

The last example of this series is rather indefinite in character but interesting in its weave contrast. Illustrations *V* and *W* are the design and draft. The ground weave is an eight-end mock leno, and the figuring is a type of cord weave. The draft is also irregular when compared with some of the preceding examples. However, the arrangement does not lack interest and certainly merits inclusion as an illustration of the possibilities of the methods of drafting previously outlined.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TRUE DOTTED SWISS

By Thomas Nelson

Dean, Textile School, North Carolina State College, Raleigh

And some variations made on drop-box and pick-and-pick looms

ALMOST every large dry-goods store has some kind of "swiss goods" for sale. These fabrics are variously marked as dotted swiss, embroidered dotted swiss, novelty swiss, curtain swiss, etc. The true dotted swiss is generally an imported article; and, when sold in the store, it is often distinguished by the saleswoman as a "tied-knot" fabric. This fabric is one in which the dot is made by a specially constructed machine, or a special mechanism on the loom, by means of which an extra thread is passed around a number of warp threads. It is practically impossible to pull the dot from the fabric, and that is the reason for its being called a "tied knot."

A swivel loom, on which dots and other fancy swivel effects are prouced, is illustrated in Fig. 1, and Fig. 2 shows the mechanism in greater detail. The back of a dotted-swiss fabric produced on such a loom is illustrated by Fig. 3, which shows the figuring thread floating between the dots. The floating thread is cut off later on a shearing machine. The face of the fabric is shown in Fig. 4.

Three illustrations of the true dotted swiss are given in Figs. 5 to 10. Figs. 5, 7, and 9 show the faces of the fabrics, and Figs. 6, 8, and 10 the backs. The sample with the largest dots has approximately seven dots in 10 in., and from 11 to 12 in. of yarn is required to make each dot. In all three samples three threads are run together as one.

There have been many fabrics made to imitate the true dotted swiss. In some of these the dots are superimposed on the fabric by flock printing, and in others the dots are woven into the fabric. An illustration of a superimposed or flock dot is given in Fig. 11. When the dots are woven in, a drop-box or pick-and-pick loom is used. The fabrics are always woven face down, with the filling floating on the top of the cloth between the dots. One reason for weaving these fabrics with the filling floating on the top is to save a heavy lift of the harness when the filling for the dot or spot is being inserted.

Figs. 12 and 13 show the face and back, respectively, of a fabric, made on a drop-box loom, which has been sold as "embroidered dotted swiss." The spot easily pulls out, and the effect of this is seen on the upper portions of the samples. The weave diagram is given in Fig. 14, and this shows that the spot is kept in position only by the compression of the filling.

The fabric illustrated at Figs. 15 and 16 was marked "dotted swiss." An examination will readily disclose the difference between this and a true dotted swiss. The spot is made from extra filling, as in Figs. 12 and 13, but to make the spot firmer in the fabric, and to keep it from pulling or wearing out so easily, it is bound on each side, as indicated by the weave diagram given at Fig. 17. The addition of the check effect to the fabric makes it very attractive, and an excellent line can be made by varying the colors.

A fabric developed from this idea, and which was marked "novelty swiss," is illustrated in Fig. 18, and the weave is given in Fig. 19. Fabrics in Figs. 15, 16, and 18 were made on a pick-and-pick loom, the filling inserted in the spot in the order of one ground and one figure.

A considerable quantity of fabrics, with a varying assortment of spots and other designs, is made for curtain goods. Such fabrics, called "curtain swiss," are illustrated by Figs. 20 to 23.

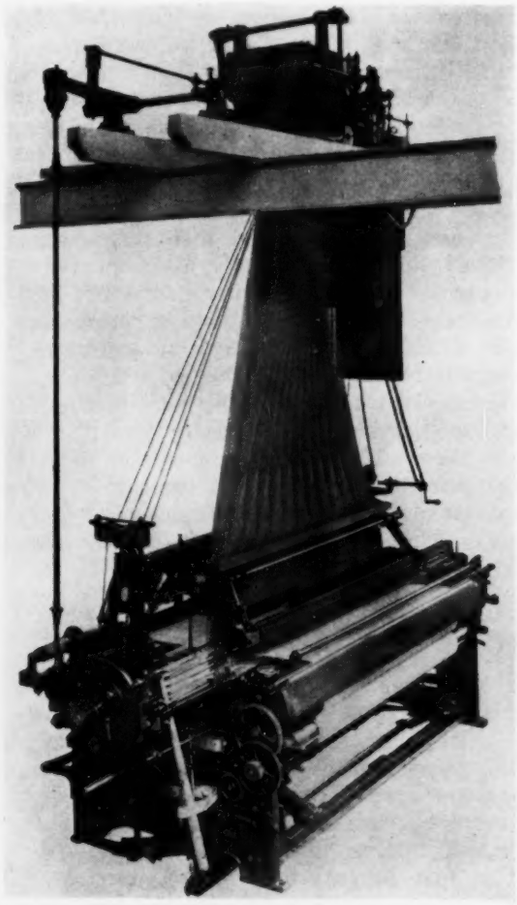


Fig. 1. Swivel loom built by Ateliers de Construction Ruti, of Ruti, Switzerland

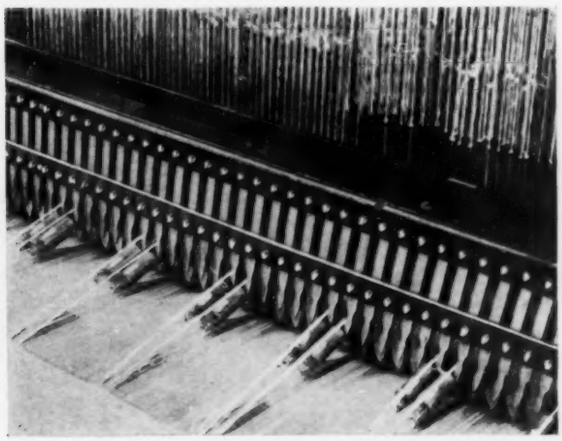


Fig. 2. Close-up of the swivel bobbins passing under groups of warp threads selected by the jacquard

Effect of twist contraction and waste removal on calculations for

COTTON ORGANIZATIONS

By Gilbert R. Merrill
Lowell (Mass.) Textile Institute

◆ *For years* TEXTILE WORLD *has sought to present a complete treatise on machinery organizations. Disappointments have been many and often. Potential authors, afraid of criticism from spinners employing other methods, have said "No." Others, feeling simply that the task was too heavy to be undertaken, have likewise said "No." Others again have said "Yes," but have sent in manuscripts too limited and incomplete to be of much value. Therefore the presentation of this series, of which the following article is the second, is an ambition realized.*

THE shortening of a strand due to twisting causes it to increase in weight, and so the number of the yarn is lower. The low twist used in roving may cause some slight contraction; but it would be very difficult to measure it, and it is generally neglected.

Measuring Contraction

Contraction in spinning, where there is considerable twist, is sufficient to cause appreciable error if neglected. The best way to measure spinning-twist contraction is by means of a two-ply measuring yarn run under one boss of the top roll spinning the yarn. It is generally considered necessary to have the ply measuring yarn as fine as, or finer than, the yarn being spun. The measuring yarn may be run on to a reel, but usually several ends are run at once and wound on the scavengers.

Twist contraction in single yarn frequently runs higher than is commonly supposed. Chart 1 shows a plot of figures for twist contraction between the twist multipliers of 3 and 8.

The percentage contraction is calculated from the basis of the untwisted length at the front roll, which is the length obtained by use of the ply measuring yarns.

$$\text{Per cent contraction} = \frac{\text{Length at front roll} - \text{length of yarn spun}}{\text{Length at front roll}}$$

Example 1. What is the per cent contraction when the average length of the measuring yarns is 872 yd. and the average length of the yarns spun is 821?

$$\text{Per cent contraction} = \frac{872-821}{872} = \frac{51}{872} = 5.85\%$$

In using the percentage of contraction when dealing with counts, the expression must be different. A shorter length, containing the same quantity of cotton, must be a coarser count, which means a lower number. Therefore, the count at the front roll is higher than at the bobbin. As it is customary to find the count of the yarn on the bobbin (after contracting), it is desirable to have some simple method of calculating what the count at the front roll (before contracting) must be to give the count needed on the bobbin.

If Yf is yardage at the front roll,
Yb is yardage at the bobbin,
Cf is count at the front roll,
Cb is count at the bobbin,
W is weight in pounds of the material, both before and after contracting, and
K is 1.00 less contraction expressed as a decimal,

the following will be true:

$$\text{Counts at the front roll } (Cf) = \frac{\text{Counts on the bobbin } (Cb)}{1.00 - \text{Per cent contraction } (K)}$$

(1) $Yb = Yf \times K$ (2) $Yf = \dfrac{Yb}{K}$

(3) $Cf = \dfrac{Yf}{W \times 840}$ (4) $Cf = \dfrac{Yb}{K \times W \times 840}$

(5) $Cf = \dfrac{Cb \times W \times 840}{K \times W \times 840} = \dfrac{Cb}{K}$

Frequently there is the question, "May we not multiply the counts on the bobbin by 1.00 plus the per cent contraction?" While the numerical value is practically equal to the correct method for the more common cases, there is considerable error in the cases with high percentages of contraction.

Example 2. If a 20s yarn is on the bobbin and the contraction is 10%, what is the count at the front rolls?

$$\frac{20}{1.00 - .10} = \frac{20}{.90} = 22.22\text{s at the front rolls.}$$

When 20s is multiplied by 1.10 the result is 22.00s at the front rolls, showing an error of about 1%.

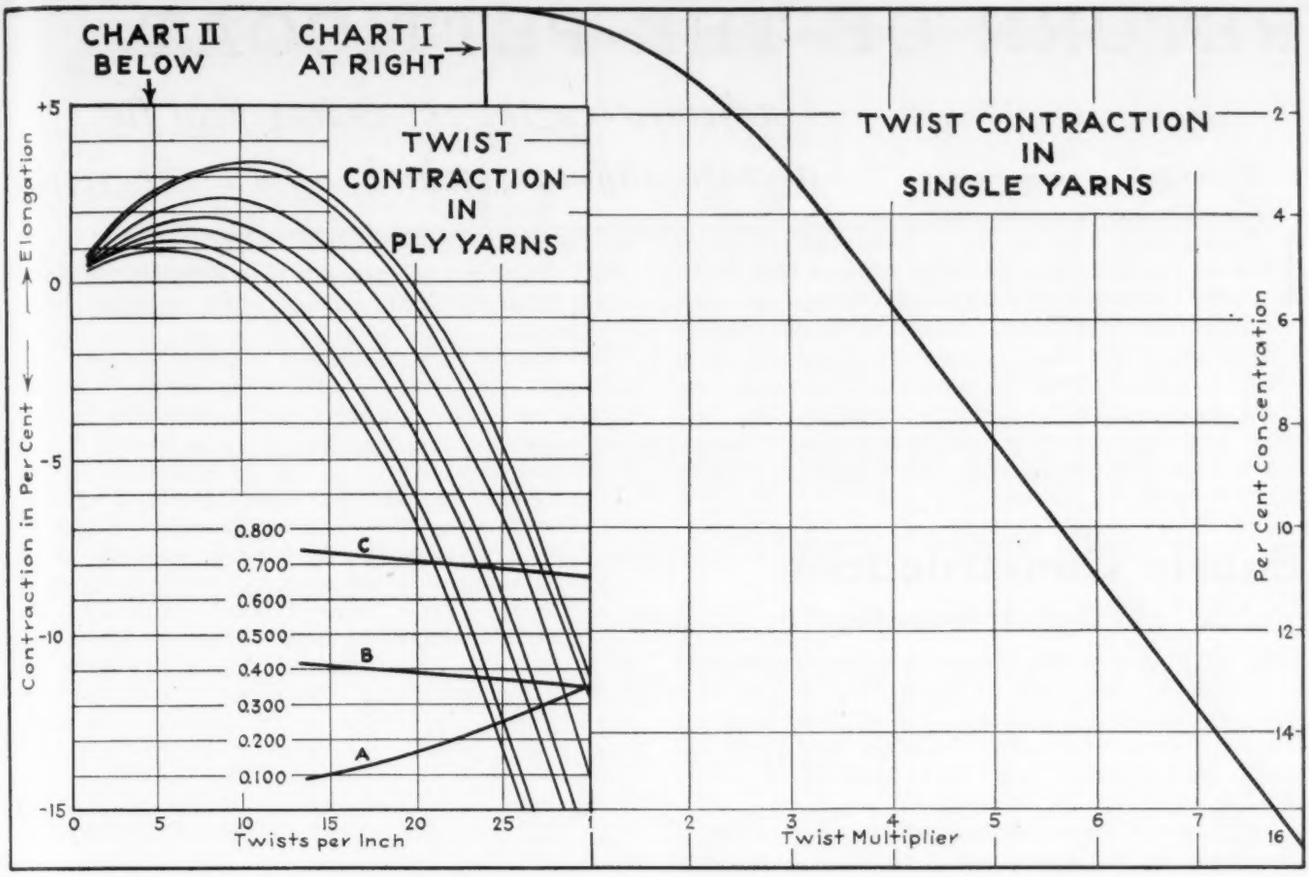
Consequently, from the theoretical standpoint, the second method is wrong.

The effect of ply twist on the resulting counts is an involved relation on which too little work has been done to draw many conclusions. However, for any ordinary two-ply yarn with reverse twist, it can be found that as the ply twist is being inserted the yarn elongates for the first few turns and then it contracts. The amount of elongation depends upon the twist in the single yarns. Once the contraction starts, the curve seems to be similar for all single twist conditions.

Chart 2 shows the elongation and contraction when twisting 13s two-ply. Seven lots of singles, ranging in twist from 13.3 to 29.8 turns per inch, are shown. Elongation is represented above the zero line; and contraction, below. Note that these curves seem to indicate that once the elongation is completed, contraction is much the same for each of the single twists. The investigation on which these curves are based was discussed in TEXTILE WORLD, Dec. 17, 1921.

Effect of Waste Losses

The losses due to the removal of tare and wastes are very important factors in the cotton-manufacturing program. First, the actual loss of materials, which reduces the final quantity of cotton available for yarns or fabrics, increases the cost of the material remaining, and so is important. Second, due to the reduction of quantity at different operations, fewer machines are required than would at first be expected. Third, operations having a high percentage of waste require less mechanical draft because of the reduction due to waste removal.



In connection with cost and production, it is customary to consider the waste in every operation. However, it must be remembered that in most mills good lap ends, sliver waste, and roving, which have been opened, are all taken back to the opening or picker room, where they are put in with the raw stock.

In connection with mechanical draft, it is customary to neglect the losses at the drawing rolls and to treat drawing, roving, and spinning as though no losses occurred. The losses in opening are not considered in connection with draft, because there is no size of product being delivered. The operations of picking, carding, and combing are those where the wastes must be considered in connection with the mechanical drafts used.

For opening and picking, the common practice is to base all waste percentages on the original weight in the bales. This is because there is no place to weigh the stock from the time it is in the bales until it gets into lap form. For carding and beyond, the percentage of waste given is based on the weight fed each operation.

The Waste Factor

A waste factor is a number which shows the relation between the value of raw cotton and the same cotton in the yarn or fabric. The factor depends upon the following items: first, the quantity of wastes removed in processing; second, the amount of waste returned to the same product; and third, the value of the wastes sold.

The simplest method of determining a waste factor is to assume a given weight of raw stock in the bale, say 100 lb., and determine the factor from that. It must be noted that, beyond picking, the waste percentage for each operation is based on the weight fed that operation, which means it is based on the weight delivered by the preceding operation. It is possible to add all the losses through picking, when they are all based on the gross weight of the raw stock in the bale. If these percentages are determined otherwise, it will be necessary to treat them accordingly.

Example 3. What is the waste factor when the following losses prevail?

Tare 5%, opening 4%, picking 1%, carding 7%, drawing 1%, roving 2%, and spinning 3%.

Tare, opening, and picking total 10%.

100 × .90 × .93 × .99 × .98 × .97 = 78.77 lb. of cotton in the yarn made from the original 100 lb.

However, wastes from drawing and roving and parts of the waste from carding and spinning are returned to the original stock.

Tabulated Figures for Waste Factor

Operation	Weight Fed	Waste	Weight Del.	Weight Lost	Weight Returned	Weight Sold	Price per Lb.	Value
Tare	100.00	5	95.00	5.00	.....	3.50	1c.	3.50c.
					.....	1.50	.5c.	.75c.
Opening	95.00	4	91.00	4.00	.....	4.00	3.0c.	12.00c.
Picking	91.00	1	90.00	1.00	.....	1.00	3.0c.	3.00c.
Carding	90.00	7	83.70	6.30	1.80	4.50	11.47c.	51.62c.
Drawing	83.70	1	82.86	.84	.84	.....	.....	.....
Roving	82.86	2	81.21	1.65	1.65	.....	.....	.....
Spinning	81.21	3	78.77	2.44	1.62	.82	6.50c.	5.33c.
Wastes returned and sold.....					5.91 lb.			76.20c.

100×12.40 = 1,240 c. for raw stock.
1,240 — 76.20 (wastes sold) = 1,163.80 c. net cost of stock in yarn.
78.77 + 5.91 (wastes returned) = 84.68 lb. of yarn from 100 lb.
1,163.80 ÷ 84.68 = 13.74 c. per lb. for stock in yarn.
13.74 ÷ 12.40 = *1.109 waste factor.*

RETURN OF THE PETTICOAT

Gathers strength, expanding field for acetate taffetas, which afford the swish

FASHIONS come and go in cycles, but few people ever expected to see the petticoat come back to life after its apparent decease many long years ago. The departure of this once standard article of women's underwear has been blamed as one of the basic ills of the textile industry. Does the long-forgotten swish now heard again—although faintly—throughout the land augur a new era in textiles? Will women be again persuaded to smother themselves in clothing? Many a manufacturer would like to have it that way.

Fabric Constructions

By Harry L. Robertshaw

THE RETURN of the petticoat in women's underwear is growing in importance as the dresses become more full, with pleats and flounces. The petticoat serves to keep such dresses full and to maintain their shape and style. As the trend toward more material in dresses continues, the vogue for petticoats will expand.

Years ago, of course, the best petticoats were made of all-silk and had a crispness which could not be obtained with any other fiber. They did not crease very easily and they had the necessary swish. The new fabrics which are being made today are all acetate; and they have the appearance, feel, and swish of a real-silk fabric. They are very versatile and can be printed or finished in solid colors. At the present time a very large yardage is being printed in stripe patterns with three or more colors to the pattern.

Sample No. 1 is by far the most popular petticoat number being made at the present time. It is a very good fabric for the purpose. Construction: 40 in., 180x62, 120-denier, 32-filament acetate in warp, 150-denier, 50-filament acetate in filling, plain weave.

Sample No. 2 is a better grade cloth and is being made in a moderate way for the higher-priced petticoats. Construction: 40 in., 200x64, 75-denier, 26-filament acetate in warp, 120-denier, 40-filament acetate in filling, plain weave.

Sample No. 3 is a very good petticoat number and is being made in considerable volume. Construction: 39½ in., 150x68, 100-denier, 26-filament acetate in warp, 150-denier, 40-filament acetate in filling, plain weave.

Finishing Procedure

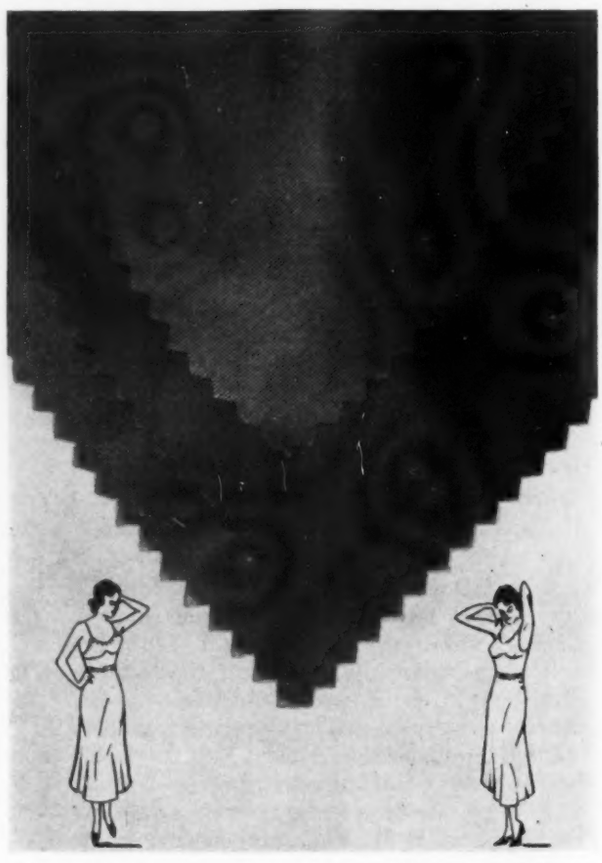
By Philip Le Brun

ACETATE TAFFETAS are almost invariably jig scoured with soap and soda before they are dyed on the same type of machine. Next they are extracted to remove the excess dye liquor, a vacuum extractor or a horizontal extractor being employed. The wet cloth is then delivered to the finishing room rolled up wet on a shell.

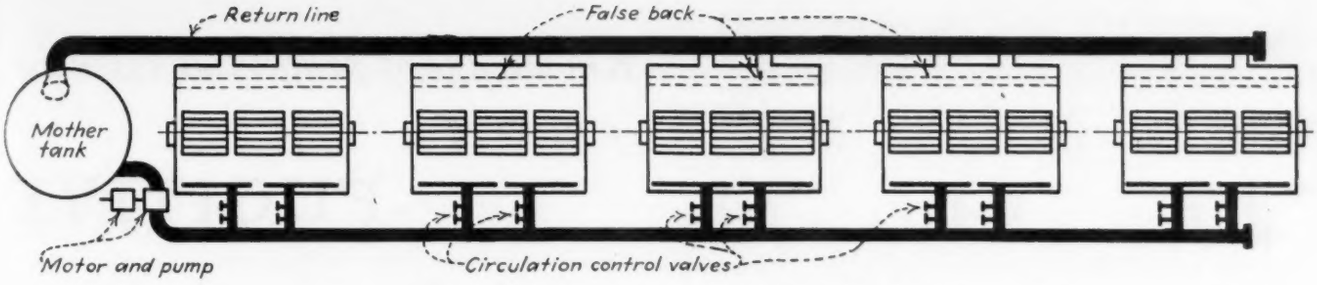
Wrinkles or creases in the cloth formed during any of the wet processes (especially on the jig while scouring or dyeing) are difficult, if not impossible, to remove during the final finishing process. Another precaution necessary during wet processing is to be sure that the taffeta is not rolled up tightly, as this would cause the fabric to moiré.

The first finishing operation is to frame the cloth. As little tension as possible is used while framing. Acetate fabrics are weaker and more plastic when they are wet than when they are dry; and excessive tension at this time would result in a shiny, thin, and brittle fabric. If stretching were carried to extremes, the cloth would have jagged tears along the selvages. During the framing operation the goods are partly, but not completely, dried.

After framing, it is customary to pass the partly dried goods through a two-roll mangle, where it is padded with a solution of sulphonated olive oil (6 qt. of oil to a 50-gal. barrel). The fabric then goes to a Palmer machine for complete drying. Here, just as in all wet operations, tension must be kept at a minimum. The steam pressure and speed on the Palmer must be so regulated that the fabric is delivered barely dry. Overheating or baking must be avoided, as excess heat results in a shiny, hard, and brittle fabric. Usually a cold calendering completes the finishing operation. Framing after drying on the Palmer is rarely necessary as the preliminary framing ordinarily suffices to stretch the cloth to the necessary width. If creases or wrinkles have been formed, decatizing will aid greatly in removing them.



First of the three samples is No. 1; middle is No. 2; lowest is No. 3.



Equipment layout developed for dyeing plush in 50-piece lots. Apparently a similar arrangement would be suitable for dyeing other types of fabrics in large lots without variation in shade.

FIFTY PIECES OF PLUSH

can be dyed successfully in one lot by means of simple machine arrangement

By Frank B. Kilduff

DYEING of plushes in 50-piece lots has been successful since early in 1924, when it was motivated by insistent demands from the automotive trade for 3,000 yd. of trim material of exactly the same shade. The writer for some years believed that this 50-piece system had been adopted more or less universally in most of the larger mills. However, an investigation showed that in some mills a feeling still prevails that such a hook-up would require the services of a mechanical engineer, as well as a chemist-dyer. Actually, the equipment is as simple to operate as an individual dye kettle.

Equipment required for this 50-piece method consists of five kettles of uniform size. Each of these must be capable of handling individually and without crowding ten 60-yard. pieces of cloth, either in open-width or in rope form for acid or union dyeing. If the open-width form is desired, three oval reels in each tub, holding about 200 yd. to the string, are suggested. A sixth kettle, about one-half the size of one of the regular dye tubs, also is necessary. It commonly is called the central or mother tank, and should be in line with and set at the exact level of the others. The layout of the equipment is shown in the accompanying diagram.

Important Features

Certain parts of the system of particular importance are described in detail as follows:

Main Feed Pipe—A 3-in. bronze or Monel metal lined pipe runs from the bottom front of the mother tank to the dye tubs, entering the latter at a height of about 7 ft., or 2 ft. above the liquor dyeing level, providing such a position allows easy access to the equipment and unobstructed clearance.

Bronze Pump—A bronze pump is installed between the mother tank and the first dye tub. Its capacity and speed depend on the amount of liquor to be circulated. The water level in each tub and in the mother tank must be the same and must be so maintained throughout the entire dyeing operation. This is accomplished in the dye tubs by allowing the circulating liquor to flow over a false back into a smaller space connected by a 6-in. return pipe to the mother tank. A point to be kept in mind is that certain dyes, such as acid alizarine, require a higher water level when high-pile plush in rope form is being dyed at or near the boil, as against a lesser quantity of water used in union dyeing in open width at a lower temperature.

Feed Lines—Two "I" feed lines, each containing two control valves, are teed off into each dye tube from the main feed line. This makes a total of ten "I" pipes and twenty circulation control valves. The double control valve was adopted after a single valve went bad and caused considerable trouble from variations in shade. After proper adjustment, these valves should be weighted to prevent changing from vibration. The liquor in each and every dye tub must be changed in the same number of minutes. A few tests will show how the valves should be set to give proper volume control.

Individual Tubs—Reels in all five kettles should be adjusted to run at the same speed. The most even distribution of heat is afforded by an inverted double-pipe T-system. A manual thermometer reading is taken every 10 min. in not less than four places across the whole length of the front of the tub. These readings are charted and watched carefully, because a relatively small difference will tend to cause a shade variation from one cut to another.

Other factors which enter into the successful dyeing of plush in 50-piece lots are as follows:

Fabric—It is necessary that each piece of fabric be woven approximately the same length, and from the same lot of pile and backing yarns, especially if both pile and backing are white and are to be union dyed. Backing yarn which is colored previous to weaving should be tested for cross dyeing, because backing yarns which bleed in the 50-piece kettle multiply your troubles by that much.

Scouring—Exactness of operation should be stressed in the scouring room, and the second hand should personally supervise the operation. The time required for soaping and rinsing must be clocked to the minute, and temperatures should be charted accurately and consistently. Operatives should be impressed with the necessity of exactness.

Dyes—Extreme color fastness on plushes is demanded under both Fadeometer and Fugitometer. Typical of those colors which stand up particularly well are Aliza-

rine Blue SAP (C.I. 1054), Alizarine Rubinoles 3G and R (C.I. 1091), Fast Light Yellow 2G (C.I. 636), Irisole Blues R and J.R., and Cyanine Greens G and 3G. Dyeing is usually carried out in a formic acid and glauber salt bath. Sulphuric acid can be used further to exhaust the dyebath, but there is, of course, some danger of side-to-center shading.

In union dyeing, the dyer must make a careful choice of colors, giving proper attention to fastness, rate of exhaustion, levelness, and affinity for backing as well as pile. Extreme care must be taken in the selection of dyes for use on combination pile yarns of mohair, worsted, and rayon or cotton.

In making a pile fabric with a latex rubber backing, properly compounded latex must be used which will change in shade to coincide with the finished fabric.

Details of Dyeing

Dyeing—If a mill has a suitable formula for a 10-piece lot, this can be used in exact ratio for a 50-piece lot. In union dyeing, allowance is made for extra water in the central tank. No allowance for extra water is made in acid dyeing. Salt, dissolved dyes, and acid are added to the mother tank (with the motor dead), and are thoroughly mixed with steam. The fabric is wet out, the control valves are properly adjusted and weighted, return pipes are opened, the water level throughout the system is adjusted, and the motor is started. This water level should be measured at the start of the dyeing, when the temperature is standardized at 80° F., and later when the temperature is 190° F.

These measurements of the water level are used in calculating the exact formula, permitting one to allow for any excess condensation. (Lots have been run with steam pressures ranging from 15 to 100 lb.) Samples are taken from each tub for color matching, and, upon completion of dyeing and rinsing, one piece usually is given the right of way through the drying, shearing, and finishing machines, after which it is air cooled to the proper moisture content and matched against the original under a north light. The remaining 49 pieces are held up pending its approval for color. In the event a lot needs shading, this method saves a vast amount of time and labor.

If infinite pains are taken in the preparation of the dyebath and the exact strength of the dye is known, it is a simple matter to dye one batch after another with never more than one feed-on, and often with no addition at all. The decimal system on the Comptometer is an aid to exact calculating.

A 2-yd. sample of the original accepted shade should be put away in a dark room free from dust and dyehouse flyings, so that a sample may be cut from it every Monday morning. It is imperative that the master sample be cut from a lot which went through without a feed-on. If this sample is matched properly, it is possible for the dyehouse to go from one year to the next without deviation from the original shade.

Despite its advantages over the usual method, there is one fact which must be considered in connection with the 50-piece system. Experiments have been going forward for about five years in an effort to develop a system utilizing a continuous machine of the washer type, and in some instances the new development is displacing the 50-piece system. A subsequent article, which will appear in an early issue of TEXTILE WORLD, will describe this continuous method.

Knowledge of properties essential if users of

FUGITIVE

By I. G. Sanford

IN THE April issue of TEXTILE WORLD the writer discussed in detail the various uses and methods of application of fugitive tints in throwing plants, knitting mills, and weaving establishments. If one is to employ tints to the greatest advantage, knowledge of their properties and ability to test them are essential. The present article, therefore, will consider those two important phases of the subject.

Whenever the word "tint" is used, it should be understood that a fugitive color is meant; that is, a color which is put onto the yarn only for identification while being processed, a color which later is to be washed out before the yarn or cloth is finally dyed. While it is a prime essential that a tint be absolutely fugitive, this is only one of the necessary qualities of a good tint. A tint must wash out completely; but must not fade in light or deteriorate with age, it must exhaust properly, it must give an even coloring which can be maintained uniformly in subsequent lots, and it must not affect any other yarn with which it may be fabricated.

Of the several methods for testing tints before adopting them for use, the most practical and generally satisfactory one is to run a little tinted yarn through the mill, see if it stands up, and then test for fugitiveness. It is often advisable to run no more than one skein or other small quantity. The test should follow mill procedure exactly, and, in the event that the yarn is to be further processed after it leaves the mill (such as thrown yarn), it is wise to anticipate what will happen to it and make tests accordingly. This method is not entirely satisfactory; but, if it is coupled with several additional tests explained below, danger of trouble should be reduced to a minimum.

The Quick-Test

When a great many new tints are to be tested, a quick-test can be used to eliminate the most obviously unsatisfactory colors. This test is carried out by immersing some of the yarn to be tinted (waste can be used) in a fairly strong solution of the tint, and then drying and washing the sample. If colorings or stains are left in the yarn, there is no need to bother further with that tint.

It is good policy to request a sample of any tint before ordering a sufficient quantity to be used in mill work. Make a quick-test of the sample and, if that proves satisfactory, one can fairly safely order a small amount. By no means should a large quantity be ordered until the tint has been tested thoroughly in an actual mill run. One cannot be sure that any tint will be entirely satisfactory until it has been used for some time.

A fairly satisfactory test for fading can be made by placing some of the tinted yarn in direct sunlight and observing the results after a few days' exposure. It is to be expected that this will cause practically all tints to change; therefore the relative degree to which different

TINTS

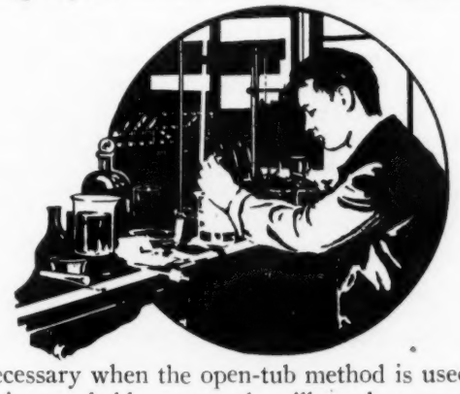
are to get most good from them

tints fade must necessarily be the criterion. Tints that fade upon steaming, as when twist is set, are never satisfactory for use in yarn which is to be twisted. When this occurs, it often happens that the yarn on the outside of the package loses more color than that in the center. This results in uneven coloring, regardless of how much care is taken in the actual tinting.

Although it is not generally used, a good test for deterioration is to place some of the tinted yarn into pure oxygen, observe any change in color, and test for fugitiveness. This is also excellent for determining how any other materials on the yarn, such as oils and sizing, will stand up.

Soaking and Sizing

The silk throwster does not experience the difficulties of a standing bath, as he makes up a fresh solution for each soaking. The vacuum and pressure systems of silk soaking require tints which exhaust with more speed than



is necessary when the open-tub method is used. Uneven coloring probably causes the silk soaker as much worry as any tint problem. The solution to this lies in the selection of a tint that penetrates well and exhausts properly and in the proper handling of the yarn.

The silk soaker must be absolutely certain that any tint he uses will come out completely in the boil-off. If the yarn is for hosiery, it must be exceedingly fugitive, so that the delicacy of the dyed shade will not be affected. If it is thrown for crepe, it should be remembered that tints are difficult to remove from tightly twisted yarns.

Rayon and acetate warps are frequently tinted, in order that the warps themselves can be distinguished readily in the weave room and so that tie threads will not be mixed—either acetate with rayon, or one denier or filament with another. This is done merely by adding a tint solution to the size, either at the size box or, better still, in the size kettle. Of course, the tints selected must be absolutely fugitive, both from the warp yarn and from whatever filling yarn is to be used with it. Also, a tint should be selected which will go on to the yarn in the same ratio as the size. If the tint exhausts more rapidly than the size, the color will gradually weaken. In extreme cases warps that started pink eventually reverted to white. It is possible to use tints which exhaust rapidly by having the tint solution in the size kettle stronger than that in the size box and by feeding this stronger-colored size into the box constantly; but it is far easier and simpler to use a more suitable tint.

It is not always realized by those using tints that it is highly important any tint used be fugitive from any yarn with which the tinted yarn may be used. For example, if a tinted rayon is to be used in connection with acetate, the tint used in the rayon should be fugitive both from it and from the acetate. To illustrate the foregoing, the experience of one plant may be of interest. An orange tint was being used to color rayon crepe filling to go with acetate warps. Tests showed that the color left the rayon, leaving it snowy white, when the yarn was merely immersed in hot water. The tint was not tested for fugitiveness from acetate; and it later developed that the resulting acetate-rayon cloth showed spots resembling rust. A careful check-up showed that the tint used in the rayon was to blame; the tint had run from the filling into the warp in no less than three different ways: graders had moistened small areas to check the crepe for one-way filling, and this allowed the color to run, staining the warp; in the dyehouse some water splashed on the cloth, with the same result; in the boil-off the color from the filling marked the warp as it passed through. This same trouble might also occur in knit goods employing more than one yarn.

The following illustrates a danger constantly run by throwsters or others plying combination yarns: A rayon yarn was being plied twenty turns with some silk crepe tinted helio. During the twist-setting operation moisture condensed on the heads of a few bobbins and ran into the yarn, causing some of the coloring to leave the silk and go on the rayon. After this yarn had been used, a portion of the resulting fabric was found to have dark streaks in it. The streaks were at once pronounced dirt; but more careful inspection showed that the "dirt" had a decided helio tinge. And sure enough, it was found later that although the tint used on the silk in the plied yarn was fugitive from silk, it was not from rayon.

It might be noted here that tints which work well on silk are generally satisfactory for acetate also, but should be tested. Mention should be made also of a recently developed tint which will color acetate yellow and rayon brown. One promising application for this product is for tinting warps of one yarn containing a relatively few ends of the other.

A most annoying thing about tints is that occasionally a color which has been used for some time will later go bad. This is generally attributable to one of two things: (1) deterioration or (2) some change in a new shipment received. Remembering this, it is safest to recheck and retest tints as much as possible. Each new shipment should invariably receive the quick test mentioned previously. It also should be checked to see that it matches the former shipment in shade and strength, so that adjustments can be made for increase or decrease in strength, or a new lot made if there is much change in shade. Whenever small samples of yarn are made up for the mill's own use, a good opportunity presents itself to recheck an old tint or test a new.

Finally it should be mentioned that old tints sometimes lose their fugitiveness or other qualities because they have been exposed to the air. For this reason, it is best to use tints from small cans refilled from supply cans which are kept tightly closed in a cool, dry place.

13% IMPROVEMENT

By A. W. Thompson
Vice-President
Parks-Cramer Co.

In breaking strength of filling yarn result of adequate humidity in spinning

THE spinning department of a large cotton mill had been reorganized. All of the best available spinning machinery had been concentrated in a single room. The increase in the number of spindles (at their higher speeds) resulted in the liberation of so much more heat that the humidifying equipment could not deliver enough moisture. It was overloaded. Along with low humidities, an excessive variation in the size of the yarn, in its breaking strength—in fact, a very unsatisfactory average breaking strength—resulted. This was attributed to low and variable humidity; how rightly, and how well proved by the graphic method we shall see later. Increased capacity in and more reliable automatic regulation of humidifying equipment brought about a prompt improvement; an improvement at once noticeable in quality and strength of the yarn.

The graphic method which we devised to compare these records made the findings unmistakable. In the three accompanying illustrations each vertical column represents the plotted results of eighteen consecutive weeks. During this time, four different yarn samples were tested daily in the skein for size, breaking strength, and computed break factor. The size, break, and break factor readings appear, respectively, on Charts A, B, and C; the corresponding numeral values through which the properties ranged appear at the extreme left of each chart.

Individual tests of each week's samples are "spotted" horizontally, and opposite their proper numerical value.

The heavy vertical line on each chart marks the end of a five-week period (just prior to increase of humidifier capacity) of low and variable humidity. The period at the right of the heavy vertical line, from 6 to 18, indicates the results of a more satisfactory humidity.

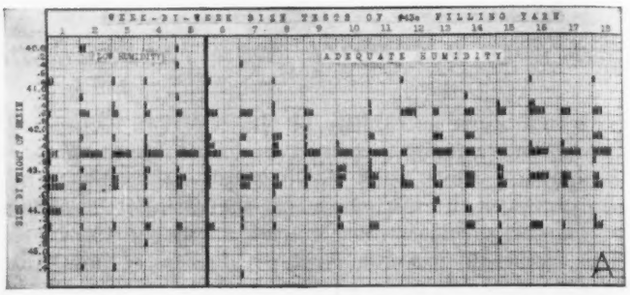
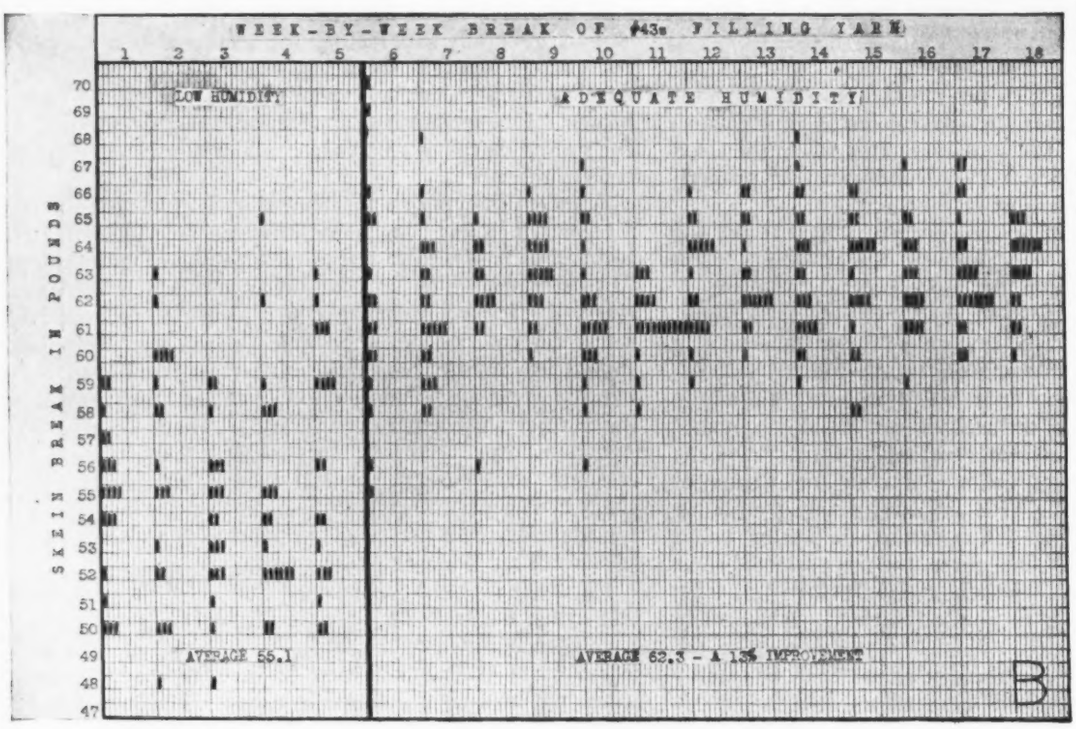


Chart A indicates the size of the samples tested by weighing of skein. Note that during the second period (that of adequate humidity) perceptibly less spread appears between the highest and lowest values each week. A greater tendency to concentration of the size value corresponding to No. 43 yarn is apparent. Since "size" is not as sensitive nor as responsive to atmospheric changes as "breaking strength," Chart A does not disclose the differences so markedly as those appearing on the two succeeding charts—B and C.

But turn to Chart B. Here the breaking strengths of the sample tests are recorded. Observe the pronounced difference in the two periods; both in averages and in variation. During the first period, as a whole, the breaking strength was found to average 55.1 lb., as compared with an average of 63.2 lb. during the second period. During the second period the uniformity in breaking strength is more marked.

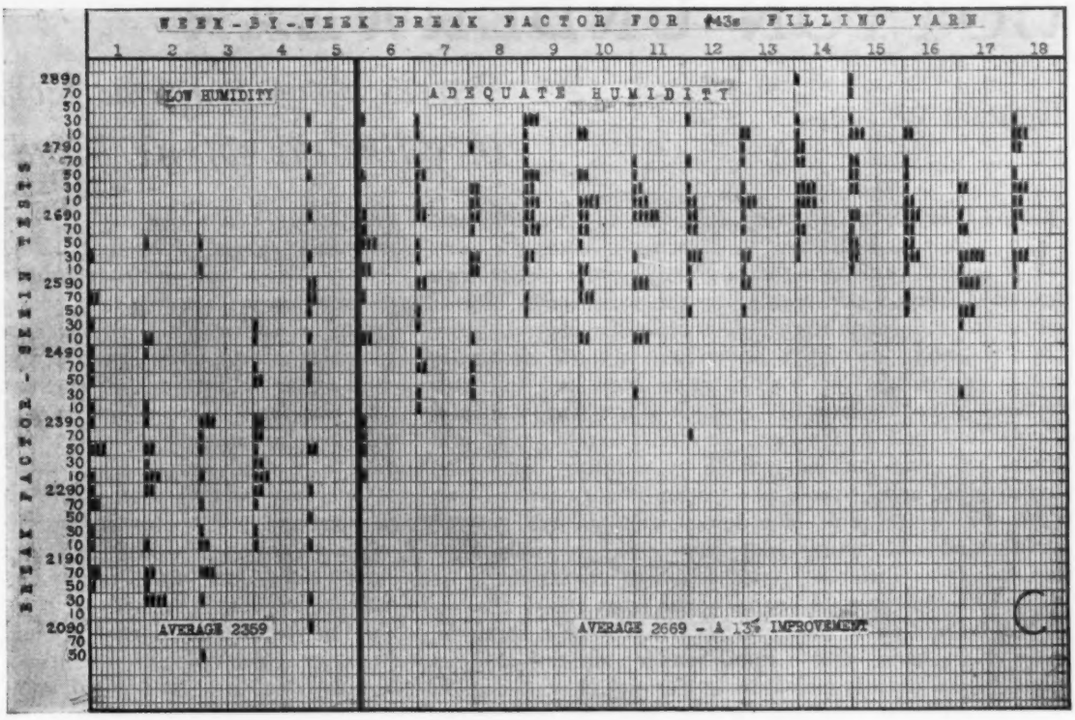
Now turn to Chart C. Here we find an equally conspicuous improvement in break factor. The average is higher, and variation fluctuates less during the second period. The average break factor is found to be 2,359, as against 2,669 for the first period, while the concentration or reduced variation during the second period is obvious.

Does it not appear that by this graphic method of plotting or "spotting" the results of daily or weekly tests on a continuous record, we can quickly detect a change due to any variable condition


WEEK-BY-WEEK BREAK OF #43s FILLING YARN
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
LOW HUMIDITY
ADEQUATE HUMIDITY
SKEIN BREAK IN POUNDS
70 69 68 67 66 65 64 63 62 61 60 59 58 57 56 55 54 53 52 51 50 49 48 47
AVERAGE 55.1
AVERAGE 62.3 - A 13% IMPROVEMENT
B

Abstracted by special permission from *Parks' Parables*, June 1936.

to which the product is sensitive and responsive? While humidity and temperature are perhaps the two most important variables affecting textile processing, changes in staple or strength of the cotton, changing spread of draft rolls, the condition of top roll covering, weight on top roll saddles, condition of bands or tapes on spinning frames, to mention only a few, have their influence.


WEEK-BY-WEEK BREAK FACTOR FOR 43s FILLING YARN
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
LOW HUMIDITY
ADEQUATE HUMIDITY
AVERAGE 2359
AVERAGE 2669 - A 13% IMPROVEMENT

At any rate, this is the best method we have been able to devise for recording and visualizing the effect of variations in humidity up on textile processing.

A recording hygrometer, with a graphic comparison of its record and your yarn tests (or ends down—or machine stoppages), might be the means of starting a new line of research, aimed first at discovering whether inadequate humidities are the cause of some of the now unaccountable things. By removing one variable, would such a graphic analysis aid in the elimination of others, and make textile processing more exact than ever before?

We ask this as a question. We do not pretend to know. But we do believe that graphs show tendencies better than isolated figures ever can—and having hit upon a method that has been helpful to us, we pass it along for what it may be worth.

A SUICIDE CLOTH

By John Picone

Low commission weaving prices have earned that name for French silk crepe

MANY of Paterson's commission weavers have had to close their doors. Others are slowly but surely being driven out of business by the suicidal prices which they are being forced to accept for weaving French crepes. Who is to blame for this deplorable condition? How can it be corrected?

The writer is not an economist, and he will not attempt to answer these questions. He does know the facts, however, and he feels that it is his duty to state the case. Mills operating at a certain loss! This cannot go on. Someone must solve the problem.

It is impossible to see how any mill can weave the popular 55/80 French crepes for 6c. a yard and break even, to say nothing about making a profit. Yet the top price offered by many silk converters is 5½ to 5¾c. The writer was with a commission weaver on Saturday, May 16, when the latter was offered 4c. a yard for weaving this construction from ready-made warps. On Monday, May 18, when the weaver went to the converter to close the deal, the converter told him that he could pay only 3¾c. If his employees were to work for nothing, it is questionable whether the weaver could break even at that price if depreciation and interest on investment were included in his cost figures.

Following are the expenses of a 100-loom plant for the period May 4 to May 9, inclusive:

Weaving at 95c. per 100,000 picks or 2⅜c. a yard	$550.00
Warping at 2¾c. per 1,000 100-yd. ends. Warps are made 14,100 ends 1,500 yd. long. Cost per warp, $5.82. 14 warps were required	81.48
Winding at 4½c. per pound	66.15
Twisting-In at ½c. per 1,000 double ends	24.50
Loomfixers, 4 at $27.50 per week	110.00
Helpers, 2 at $15 per week	30.00
Quillers, 4 at $8 per week	32.00
Pickers, 3 at $8 per week	24.00
Measurers and examiners, 2 at $10 per week	20.00
Office worker	15.00
Supplies	12.00
Insurance (compensation)	7.00
Telephone, stationery, stamps	8.00
Expressage	19.20
Rent	50.00
Heat	21.82
Power and light	94.40
Total	$1,165.55

Working day and night at 90% efficiency, 100 looms will produce 20,000 yd. of the fabric under consideration. Based on the figures given above, the weaving cost is $0.0583 per yard. This figure, however, does not take into consideration such factors as depreciation and shortages of silk for which the manufacturer must make good. It is evident, therefore, that even at the top price of 6c. a yard, there is no profit in weaving the 55/80 French silk crepes. Anyone who attempts to weave them for 5½ to 5¾c. is faced with certain doom.

If the silk weaving industry is to survive much longer, something must be done to remedy this insufferable condition. What is the answer?

COTTON UNDERWEAR

Stages a comeback as women decide they like the soft feel and new stitches

By Paul W. Niles

WOMEN'S underwear, knit in many combinations of fancy stitches, is showing a decided comeback. It seems that a goodly number of women are developing a preference for the soft, warm feel of cotton to the smooth, cold feel of other fibers. Store counters and newspaper advertisements are featuring cotton garments of plain rib, knit to shape and knit with panels—also garments of one-tuck silk stripe, welt silk stripe, two-tuck, double-tuck, combinations of tucks, and Swiss rib—and garments made by omitting needles in the cylinder and in the dial. Cotton underwear is being offered in white, pink, blue, lemon, random dye, colored stripe, and contrasting-color check. Some mills have ten to fifteen different styles of stitch effects made of many different weights—using yarns from 18s to 28s.

A boss knitter on this underwear has to be a foreman, a good mechanic, and a mind reader; and his abilities must be sufficiently versatile to permit his working on several different machines at one and the same time. For instance, he is shown a sample garment. It may be a needle-out pattern in two colors with certain tuck-stitch effects. He puzzles out in his mind the right way of making it, and while he is trying out his idea on one machine, and modifying it as necessary, he listens to the complaints of holes and drop stitches from the operators of other machines, listens to criticisms of this fabric or that fabric from his employer, and tries to introduce improvements accordingly.

Some Examples

Fig. 1 is a simple 1x1 rib-stitch ground with welt-stitch rayon stripe. Colors being used on the rayon include pink, blue, and light green. In all white this fabric resembles certain men's goods—in which, however, a single tuck is more usual, with the silk on top.

Fig. 2 is a plain rib stitch, but it is made with four cylinder needles in and one out and with two dial needles in where the cylinder needles are out and another dial needle in the middle of the four cylinder needles (that is, with two cylinder needles on each side). The rayon stripe is one end run with regular cams and plated over the body yarn by means of the regular plating guide. There is a slight tension on the rayon. The courses above and below each rayon course are of white cotton, while the remaining cotton courses are pink.

Fig. 3 is a double-tuck fabric; that is, it consists of two tuck stitches and two plain stitches. Four cylinder needles are in and one is out. Three dial needles are in and two are out. The dial needles that are in include the two where the single cylinder needle is out and also the one between the first two cylinder needles of the next group of four. This pattern allows great possibilities for color effects, and the whole appearance of the fabric can be changed by simply, for example, advancing a color yarn one feed. Two colors on opposite tuck-stitch cams will give an interesting effect. Colored rayon can be used to good advantage.

One very popular stitch is also about the simplest that can be made. Needles are out in the cylinder in 2x2 order, and in the dial in 3x1 order, so that every two cylinder needles have a dial needle between them. The dial needles are double tucked—that is, two tuck, two plain. To this pattern it is easy to add a welt-stitch rayon stripe or a colored cotton stripe. The colored end can be placed on different feeds to show only at certain spots for the effect of a dot or dash.

Difficult Specification

Another successful stitch, although made only by one southern mill, is a 14-cut needle-out pattern along the lines of Fig. 4. For this 14-cut, 48-gage, which is a difficult specification under the best conditions, the yarn, which may be 26s combed, must be as perfect as it is possible to spin it. The pattern calls for all cylinder needles to be in and the dial needles to be arranged two in and three out, with three-tuck on the dial, and one feed a welt stitch with three ends, giving a sunken-square effect. All very nice—provided there are no holes.

And on this point some special advice may be necessary. Have the cylinder needles just clear the cylinder top. Raise the dial enough for the length of stitch until you get the right weight—and don't worry about how high that may be. Set the yarn guides to suit. The writer has knitted women's underwear for 30 years, but he had a surprise when he saw a 14-cut running 28s cotton yarn nearly perfect with the dial, say, $\frac{1}{4}$ in. or more above the cylinder and with an inspection card which showed that in 67 yd. there were no press-offs, no drop stitches, no bad needle runs, and only seven holes.

Still another good pattern calls for all cylinder needles in and the dial needles two in and three out all the way. Three tuck and five plain give a waffle pattern. There is no welt stitch, but colors added give the novelty of a

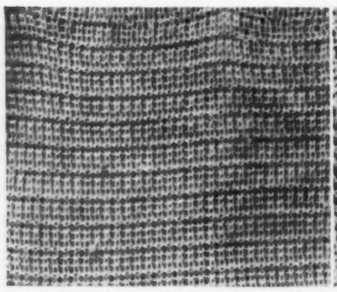


Fig. 1. A simple use of rayon in a welt stitch

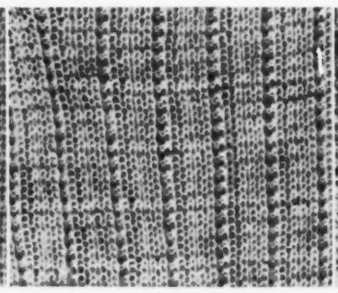


Fig. 2. Needles out in both cylinder and dial

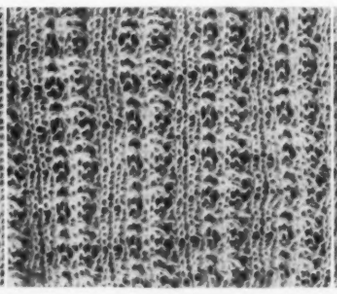


Fig. 3. A double-tuck fabric

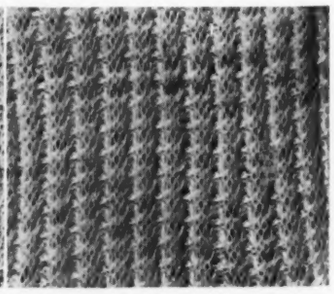


Fig. 4. 14-cut fabric (square effect on reverse side)

jacquard and striper. There is a chance for variety in the placing of the colors; and a white body with one pink end in the last tuck gives a much different effect from a pink end on the first or second tuck. The color gives the square effect without any necessity for several ends in a welt stitch.

Panel Effects

New panel effects are good, and to get away from that knitter's nightmare of one part of a panel pulling much tighter in the take-up than another part, just cut the hooks off the dial needles—don't take them out. This allows the full stitch to pull over the dial needles without being held. To put it another way, there is as much yarn drawn where no stitch is wanted as where all needles are in. I recommend you try that one.

Thousands of effects are possible with arrangements of long-latch cylinder needles or short-latch dial needles in plain and colors. The vertical stripe of two needles seems most popular. A good imitation of a French hand pattern at close view can be obtained with two long-latch cylinder needles and one short-latch dial needle spaced to suit.

A western mill possessing a lot of jersey-cloth machines had the idea of making underwear. No one wanted flat or single-stitch underwear, so they inquired around, wrote letters, and finally hit on the plan of making a stitch that looked like rib on their jersey machines. Simple—they used every other needle as a tuck.

Another mill got away with no expense of pattern wheels by having long-butt needles, spaced for a pattern, that had a two-way cam. Actually it was really no cam—just a thin piece of steel like a clock spring arranged to pick up the long butts only.

WORSTED TWISTS . . .

By George Hendricks

Surprising irregularities shown by tests

IT IS a matter of common knowledge that two-ply twist variations are giving rise to much concern in some of the largest worsted mills. A curious fact is that relatively few signs of a similar fault in single yarns have been noticed. True, such faults do occur, and are traced to their cause, but their number is practically negligible as compared with defects in two-ply.

Why this is the case is not at all clear. It is just within the range of possibility that a 10% variation in single yarn woven into cloth will not show to the same extent as a 10% variation in two-ply yarn. Neither of them show in the gray, but an 8% variation in two-ply yarn makes a definite bar.

Only one experiment of this kind has been made. Any person with machinery at his disposal who would make a series of tests along these lines would confer a benefit on the trade. The service would be of highest value if the relation of twist in the single to twist in the ply could be established by a long series of tests in which almost every variety of single yarn could be compared with every variety of two-ply twist.

This is hardly the place to go into the variation in counts, but it must be stated as a fact that a single bobbin of 2/26s with normal twist cannot be detected from adjacent bobbins of 2/22s. This is a variation in count of over 18%, and it is probably invisible because to a greater or less degree all looms endeavor not so much to put in a given number of picks as to put in so much filling that the pressure on the reed remains consistent; and if thick filling is supplied to a loom which has been weaving thin filling there are few exceptions to the rule that the loom will put in fewer picks of the thicker counts.

A fact of real importance emerging from these statements is that an 8% variation in twist shows more than 18% variation in counts. This is due to the fact that the apparent variation in color of filling bars caused by twist is due to alteration in the angle of reflection.

What is the lowest possible margin of error which must be present in spinning of all yarn, and how can the nearest possible approach to perfection be attained? To the second part of the question no answer can be returned, except that the best-managed plants invariably show the least proportion of twist faults; but an answer to the first part may be attempted.

First, it is necessary that the relation of twist to count be recognized. Where the yarn is thin, it will take up more twist from the thicker places on each side of it. There are two classes of irregularity: (1) that which occurs over long lengths, due to variation in spindle speeds, and (2) that which occurs over short lengths. These involve the study of two entirely different things.

To begin with, let us state some simple facts. In a test on ring-twisted yarn 5% variation in twist was found over lengths of 35 yd. This may have been due to the varying diameter of the bobbin, which in cap and ring is known to affect twist distribution.

When yarn has not been drafted suitably to the length of the fibers and the twist in the roving, it is "twitty" and twist accumulates in the thin places. Owing to the extreme shortness of these thick and thin places, it is virtually impossible to weigh them; moreover, the weights would not help, because the thin places appear much smaller than they really are in the cloth, and the thick places are thinner than what they appear.

The best system seems to be to take the turns per inch of these abnormal places and compare the average turns in a series of ten or twenty tests. Such figures give remarkable results. They show that yarn may have as much as eighteen turns per inch at one place and as little as five turns within 6 in. of it. One series in which hard and soft places were picked out, averaging about 6 in. from one another, read as follows: 18, 5.5, 18, 7.5, 11.5, 5.25, 7.5, 15, 6.0, 16, 7, 12, 4, 20, 7.

These belonged to a 1/24s 60s quality, and they showed that some parts of the yarn contained three times as much twist as others, the average difference between hard places and soft places being no less than 162%. As compared with these figures, the twist from a really good 1/24s 64s quality, in which the hardest and softest places were selected, read as follows: 11, 7, 14, 9, 11, 7, 12, 7, 9, 6.5, 11, 9, 11, 6.5, 13, 7.5. In this case the difference between all the hard and soft places was only 55.5% and this may be taken as a fair illustration of a really good yarn of 1/24s counts. It shows that there is still room for improvement in spinning.

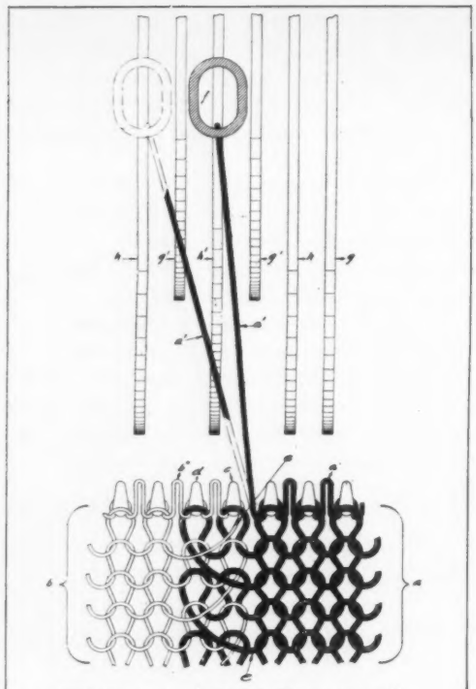


FIG. 89- Suture Shift, Right to Left

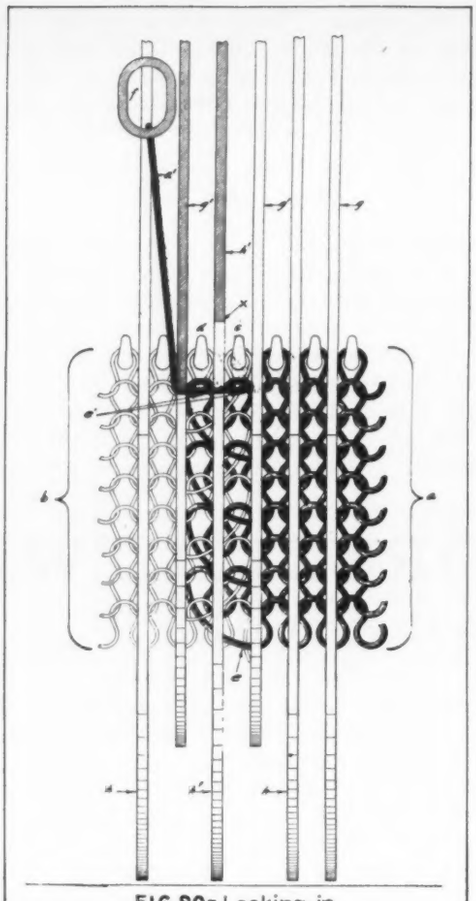


FIG. 90- Locking-in

SPLIT FULL-FASHIONED

How vertical herringbone sutures are completed on hosiery machines

By M. C. Miller, M.E.
Manville, R. I.

◆ *This is the concluding article of M. C. Miller's series on full-fashioned hosiery machines and their operation. When this distinguished authority began writing on these matters—in May, 1930—there was no detailed discussion of full-fashioned knitting available to the trade. Furthermore, there were then few—very few—authors writing even occasional articles on the subject for technical journals. The demand for published information was urgent and incessant, and it was specifically at the request of* TEXTILE WORLD *that Mr. Miller undertook to fill this great need.*

For the benefit of the many readers who for some time have been disappointed to learn that the supply of issues containing the early instalments was long since exhausted, we are glad to announce that the entire series, revised in many parts and with new chapters added, is being published in book form this month by the McGraw-Hill Book Co., New York.

FROM the position shown in Fig. 88 [TEXTILE WORLD, May, page 83] the elements go through their regular knitting motions until the needles have moved beyond the end of the sinker noses, as shown in Fig. 89.

Suture Shift, Right to Left—Fig. 89 shows the needles beyond the sinker noses at the time the carrier is shifted to the left, a distance of two indexes. This shift takes place at the time the relative position of the sinkers and needles is as shown in this figure—that is, at the time the kinks of yarn have just left the noses of the sinkers. The kinked yarns are shown at *a"* and *b"* and the subsequent movement of the needles over the knock-over bits will form them into finished loops. The positioning of the elements in the relationship shown was caused by a forward movement of the needles (that is, away from the carrier) and a backward movement of all the sinkers.

The reason for using the special jack sinkers *g'* is made quite clear in this figure, as it is necessary, during the subsequent movement of the needles and sinkers toward the carrier, to have the yarn *a'* come under the nose of the special right-hand jack sinker *g'*, so that upon subsequent reversal of the carrier the float *e* will be properly formed at the suture. The special jack sinker *g'* to the left of the suture fulfills a similar function at the end of the carrier stroke from left to right.

Locking-in—Fig. 90 shows the sinkers and needles as having moved relatively toward each other. The needles in this movement also move toward the carrier

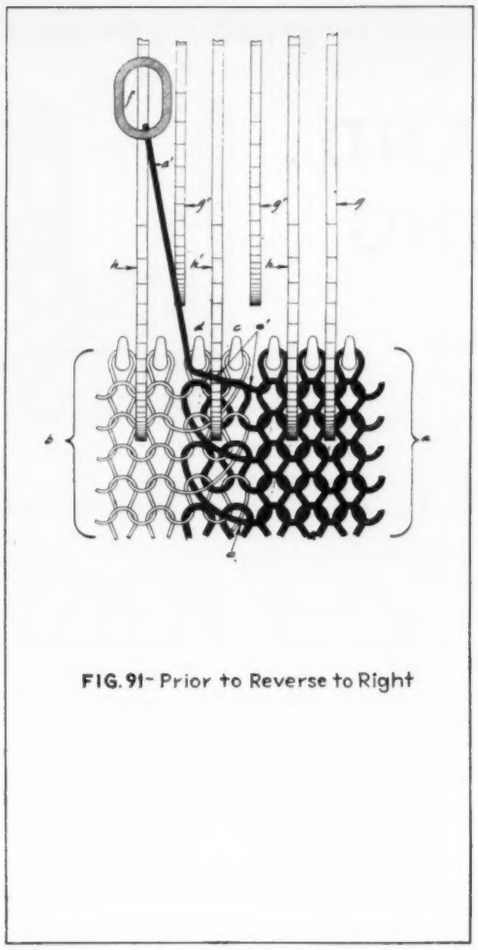


FIG. 91- Prior to Reverse to Right

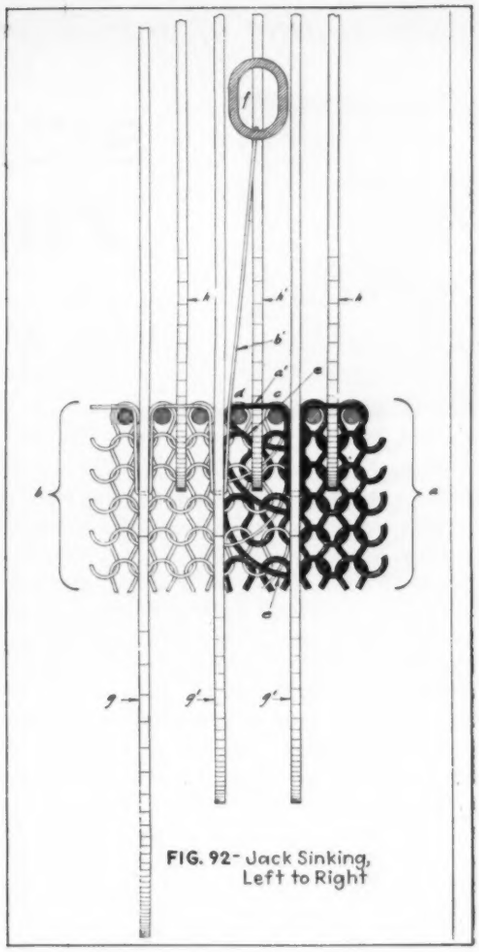


FIG. 92- Jack Sinking, Left to Right

f, which remains in its shifted position with the yarn *a'* passing under the special right-hand jack sinker *g'*, and over the noses of the special suture divider *h'* and special left-hand jack sinker *g'*. The two latter are shown in section, particularly to show the clearance throat *x* formed in the suture divider *h'*.

It will be seen that the former kinks of yarn *a"* and *b"* have been formed into loops during the movement of the elements between Figs. 89 and 90, the knock-over bits and fabric take-up having acted to form them in the regular manner. The sinkers and needles assume the position shown in Fig. 90, with the yarn *e'*, which will subsequently form the next suture float *e*, positioned to the back of the suture needles *c* and *d* prior to the time the hooks of the needles, as they lift, come to the throat height of the sinkers. With the in-and-out relationship of the sinkers and needles remaining as shown in Fig. 90, the needles continue to move upward; and when their hooks are somewhat above the throat of the sinkers and the yarn *e'*, the sinkers are withdrawn.

Ready for New Coulier Stroke

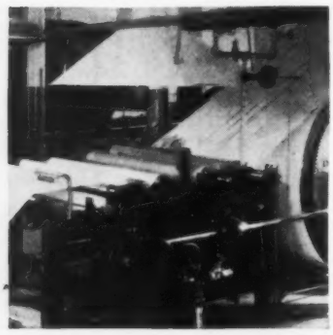
Prior to Reversing to the Right—Fig. 91 shows the needles fully raised, in position for the next jack-sinking or Coulier stroke, which will be from left to right. The yarn *e'* is shown at the back of the suture needles *c* and *d* and wrapped around the back of the suture needle *d*.

Jack-Sinking, Left to Right—Fig. 92 shows the end of the next yarn-sinking stroke, in the traverse of the carrier from left to right, the yarn carrier *f* for the thin fabric *b* stopping over the special divider *h'*. This is the same position in which the reinforcing carrier stopped in its stroke from right to left [shown in Fig. 87, TEXTILE WORLD, May, page 83]. The last sinker to kink yarn is the jack sinker *g'* to the left of the suture needles *c* and *d*, and the yarn *b'* has been formed into kinks around each pair of needles, the last pair being those to the left of the suture needles *c* and *d*. The reinforcing yarn *a'* has been similarly kinked by the jack sinkers to the right of the suture needles, all the dividers *h* and the special divider *h'*, as is usual, remaining idle up to this time. The straight bar of reinforcing yarn *a'*, lying between the *c* and *d* suture needles, in the same manner as previously noted relative to Fig. 88, must remain straight—that is, must not be kinked during the subsequent dividing motion—the throat *x* of the special suture divider *h'* effectively failing to kink it.

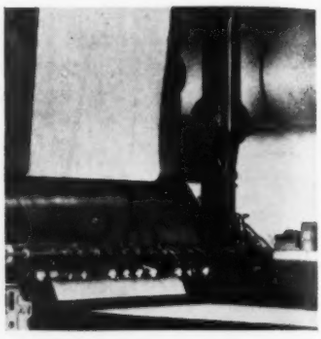
Conclusion—The carriers continue to stop and shift as long as split fabric is to be produced, the shifting being possible because of the lifting of the special split carrier stop, shown in Fig. 85 [TEXTILE WORLD, May, page 82]. When plain body fabric is to be knitted, the operator stops the machine, makes the necessary carrier changes, lifts the latch handle *n*, shown in Fig. 85, and thereafter starts the machine, ordinarily using one of the carriers used during split knitting, which will function as a body carrier due to the lifting of the special split carrier stop shown in Fig. 85. The traverse of the carrier is then arrested by end or other stops.

It is to be understood that all the movements of the needles and sinkers are normal. It is only the use of the special sinkers and the special two-index carrier suture shift that is peculiar to split knitting.

Understanding of starch properties leads to greater efficiency in



SIZING AND FINISHING



By F. G. LaPiana
Stein Hall & Co., Inc.

IN AN earlier article on the use of starch and starch derivatives in sizing and finishing (TEXTILE WORLD, May, 1936), we have considered the mechanism of starch paste and starch film formation and have discussed the way in which results in warp sizing are influenced by concentration, viscosity, wetting power, and congealing power of size pastes. With that information in mind, we can now turn to the actual operations of sizing and finishing.

In meeting the squeezing roller of the warp sizing machine much of the paste is forced off the yarn. The amount left being the more, the more viscous is the size, the softer the covering of the squeeze roller, and the less the pressure or the less the time of pressure available as determined by the speed of the machine. According to tests made at Shirley Institute, from 5% to 10% more is taken up when the speed of the machine is increased from a delivery rate of 55 yd. to 75 yd. per min. A further acceleration to 100 yd. per min. has very little additional effect on the weight of the size taken up, but the penetration of the size in the yarn is decreased continuously as the machine is run faster. With constant sizing conditions, the amount of size taken up is influenced by the nature and extent of the yarn surface, such as twist, count and growth of cotton. The higher the twist, the less the size, the finer the count, the more is the size taken up by the yarn. For the determination of the value of the size as an aid to good weaving, the final distribution of the size in the yarn and on the surface of the yarn exceeds in importance all other factors. The final distribution is controlled to some extent by the method and degree of drying, but principally by the rate of congealing and settling of the starch film while the excess moisture is being evaporated.

It is generally admitted that for sizing fine yarns, from 40s up, size made from potato starch gives the best results. For coarse yarn up to 40s, thick-boiling cornstarch, or thin-boiling cornstarches, usually give satisfactory results. In some cases it is possible to use tapioca or sago flour to good advantage. In this country in sizing worsted yarns, potato starch, high-grade tapioca flour, or a slightly modified tapioca flour in form of a gum are used almost exclusively. While single-worsted yarns require a rather heavy size, two-ply yarns are usually sized very lightly or not at all.

At the end of the spinning operation the yarn is wound on bobbins with the twisted fibers running in the direction of the thread travel. In each subsequent operation the direction of travel is reversed, and, with conventional sizing methods, the fibers are moving against what might be called the grain of the thread as the yarn passes through the slasher. Thus, in sizing as it is now practiced, we try, not quite successfully, to bend the protruding fibers upon themselves, and it seems that this would result, not only in rough warps, but in a lot of shedding of broken fibers in the looms. It appears that perhaps a smoother yarn and, consequently, better weaving would be obtained if the yarn were sized while the fibers are moving with the grain, as they are when the yarn is wound from spools, cheeses, or cones on to section beams.

Effect of Drying

In yarn which is not dried by heat—but is passed directly from the sizing rollers to a swift, drying slowly at room temperature—a well-defined cylindrical zone of size can be noticed on the surface of the yarn. In drying on cylinders this continuous surface coating becomes broken, and the size advances irregularly or sinks towards the center of the yarn. It seems then that in the formal sizing process as carried out in this country, we do not produce a yarn with a cylindrical size film surrounding the thread like a sheath, but a yarn carrying more or less broken stretches of size film on the surface and more of the size film imbedded between the fibers and holding the fibers together. Whatever the shape, length, or thickness of these films may be, they partake of the properties and are subject to the general physical laws of starch films, and the sum total of the properties added to—and in some respects, superseding the properties of the fibers and the yarn—constitute the contribution of the size to efficient weaving.

In trying to establish the connection between sizing, the mechanical properties of the yarn, and weaving, one must consider the resistance of yarn to breakage under a straight pull, and its resistance to bending, rubbing, and jerking. The usual strength test then needs to be supplemented by others designed to measure the resistance of the yarn to these forces if a proper understanding of the effects of sizing is to be reached.

It is generally known that a size to be efficient should increase the tensile strength of yarn and its resistance to abrasion by the drop wires, heddles, and reed wires of the loom, and that it should reduce the hairiness of the yarn, so that loose fibers of adjacent threads will not tangle. It is not as widely recognized that a size should not decrease the flexibility of yarn more than is necessary and that it should not unduly decrease the elasticity of yarn—especially finer counts.

From what has been said in this and the previous

This article is based on two technical papers—one delivered at New Bedford Textile School, New Bedford, Mass., on Feb. 27; the other, at a meeting of Committee D-13, American Society for Testing Materials, held in Washington, D. C., on March 12.

article, we can draw the following conclusions:

1. Except for the rate of congealing of the paste and what it implies, there is no appreciable difference between the natural untreated starches commonly used for sizing in their most important properties affecting weaving (strength, adhesiveness, and elasticity); any one of them can be used with satisfactory results, especially with coarse yarns; and it may pay in well-managed mills to change from one to the other according to market conditions.
2. Unless a larger percentage of size is required on the warps than is practical to apply with thick-boiling starches, without making the size too viscous and hard to handle, the pure, untreated starches are to be preferred to thin-boiling starches.
3. Use of soaps, sulphonated tallow, sulphonated oil, etc., should be restricted to very small amounts or eliminated altogether. Plain refined tallow or plain castor oil may help to lubricate the yarn and soften the film and may be necessary, but the percentage ought to be kept below 5% of the weight of the starch.
4. Although starch films are ductile to a degree and, under proper humidity can easily be bent, they are not as flexible as the fibers themselves; thick starch films are more brittle than thin ones; consequently warps should not be loaded with size more than is necessary.

Before leaving the subject of sizing, it should be noted that proper humidification of the weave room is of primary importance. The strength of sized yarn is greatest between 70 and 80% relative humidity; but when the humidity falls below 70%, there is very little change, even at much lower humidities. In this respect, of course, sized yarn behaves in quite a different way from the unsized material.

Starch in Finishing

In finishing cotton fabrics, starch and starch derivatives find applications in such processes as backfilling, weighting, stiffening, and pure starching. For producing a fully backfilled finish, thick-boiling cornstarch is principally used, and large amounts of insoluble finely powdered mineral fillers, like china clay, talc, etc. In the better grade of goods, part of the cornstarch can be replaced to advantage by potato or wheat starch. Medium grades of tapioca flour, not too stringy, are satisfactory, especially in mixtures with cornstarch. High-grade tapioca flours, due to stringiness, do not spread evenly and should not be recommended, unless especially treated to alter this quality. In order to bind the filler, so it will not dust off when the goods are folded and handled, a good adhesive binder is added. Rosin size is often recommended for this purpose, but a well-converted, light-colored dextrin, especially if made from tapioca flour, will serve the same purpose. To reduce the boardy effect that the large amount of starch imparts to the goods, soluble tallow, soluble waxes, or cream softener is added to this mixture. Care must be taken not to add too much softener, as softeners have a tendency to weaken the strength and the adhesiveness of the starch film and thus may increase the dusting off of the finish.

Often it is required to increase the weight of the cloth without altering the appearance of the surface. In this case, soluble salts, like epsom salt, glauber salt, common salt, glucose, or sugars, take the place of the insoluble fillers. To obtain the desired results, they must be used in highly concentrated solutions; and, in the case of salts, to eliminate the chances of crystallization with consequent disruption of the fibers, it is advisable to add a certain amount of dextrin as a protective colloid. It often happens that colored goods of this class dyed with vat dyes and finished with glucose, sugars, or highly soluble dextrin change shade when the finish is applied, especially if the mixture happens to be on the alkaline side. To prevent this change, it is advisable, if possible, to turn the mixture on the acid side by the addition of some mild organic acid, such as acetic acid. Sometimes it is necessary to change to some form of oxidized starch, with no, or very low content of, reducing matter.

All finishes in which starches or dextrin are used impart more or less stiffness to the goods. In many cases, this is not the object intended; and often after the finish is applied, the goods are run through a button breaker or other special apparatus, which breaks the starch film into minute particles and renders the goods soft and pliable again. Of course, the addition of oils, softeners, waxes, and fats reduces this stiffness, too. In other cases, stiffening is practically the only object of the finish. In this case, very thin-boiling cornstarch or partially soluble white corn dextrin in concentrated solutions gives the best results. When beside stiffening, filling of the cloth is desired, mixtures of thick-boiling and thin-boiling starches are indicated; wheat starch is superior to cornstarch for this purpose. If less filling and more penetration is desired, tapioca flour is substituted. While for plain starching and filling, thick-boiling starches should be cooked only to 180-185° F.; for stiffening they should be thoroughly boiled at 212° F.

Pure Starching

A large variety of special finishes is grouped under the name "pure starching." While in some of these finishes a partial filling or stiffening may be required, the principal, and in most cases, the only object is to impart to the goods a more substantial hand, without affecting their pliability or draping qualities or the special appearance which has been given or is going to be given to the surface through purely mechanical treatment. For this purpose, thick-boiling starches in diluted solutions, with the addition of oily or waxy softeners of some kind, are used. The quality and grade of the goods and, more often, the cost of the finish are the determining factors as to which one of the many starches to choose. Generally in the esteem of the finisher, potato starch is first; wheat, tapioca, corn, and sago follow in the order named. Very often, of course, some special quality desired changes or reverses the order; for example, in finishing black-dyed piece goods, for which sago is useful.

When sheer goods, such as voiles, organdies, etc., are finished with starchy materials, only high-grade gums and dextrins are used. Potato dextrins and tapioca dextrins of different degrees of solubility and conversion to suit the different requirements are the best.

In Sanforizing and similar preshrinking processes, shrinking takes place in the space of a minute or two, according to the speed of the machine, and, unless the fibers are so conditioned that they will absorb moisture almost immediately, the operation is a failure. For this reason, it has been necessary to change or modify nearly all the finishes usually applied to this class of goods. Thick starches which cover and fill the cloth must not be used. Gum and dextrins which easily remoisten and become sticky must be eliminated; otherwise they gum the hot electrical shoes. Fats, oils, tallow, and materials that repel water must be kept out as much as possible. Thin-boiling starches, specially prepared starches that disperse well and leave the surface of the fibers exposed, liberal use of glycerin or other hygroscopic materials and wetting-out agents are recommended.

Need for research on problem of

TEXTILE DRYING

shown at conference of U. S. Institute

TWO important points brought out at the conference on drying problems, held under the auspices of United States Institute for Textile Research, May 6, in New York, are that marked improvements have been made in recent years in the design of drying equipment, but that research is needed to find under what conditions drying of textiles should be carried out to prevent damage to the fibers and at the same time keep costs at a reasonable level. As a result of these findings, the 150 or more textile men who attended the meeting agreed unanimously that the Institute should initiate a research program to determine the critical temperature, time, and pressure at which various types of textiles can be dried without modification of the natural properties of the fibers or injury to sizing and finishing compounds. The consensus was that with this information available, engineers will be able further to improve the design of drying equipment to meet these conditions. Several of the mill men, machinery builders, and chemical manufacturers affirmed their willingness to give financial support to such an investigation.

Warren E. Emley, chairman of the research council of the U. S. Institute, presided at the conference. The morning session was devoted to the presentation of a series of prepared papers on drying of cotton, wool, rayon, and silk, and on drying from the machinery manufacturers' viewpoint. This was followed by an open discussion at the afternoon session.

Cotton and Wool

Presenting a paper by Samuel B. Bird, P. B. Wendler, Joseph Bancroft & Sons Co., stated that the general methods of drying cotton piece goods are can drying, tenter drying, and calendering. Can-dried fabrics usually have a harsh feel, are fairly stiff, and are almost bone dry. This necessitates the addition of softening agents during finishing, which might be materially reduced if the fabric were allowed to dry more naturally. If a fabric is damped to too great an extent before calendering the fabric is apt to have a crisp, papery feel. This may be removed by swelling the fibers again by wetting out the fabric, drying, damping, and re-calendering. However, the fabric never seems to return to the same condition that it would have if it had been properly handled in the first place. The normal moisture content will be regained; but the fibers seem to have received a permanent change. However, where excessive heat is used, the strength of the fiber is reduced, and it is not regained when the moisture returns to normal.

In his discussion of wool drying, E. N. Angus, Eavenson & Levering Co., stated that the drying rate of any hydroscopic material is in exact proportion to the vapor pressure of the air surrounding that material. Regardless of the commodity, the temperature, humidity, and circulation of air, each in its relationship to the other, govern and control all drying. It is unreasonable to expect efficiency in any type of drying without complete knowledge of the product's ability to withstand, without injury, an accelerated setting of drying conditions. It is impossible not to believe that case hardening occurs in wool drying, that surface stress far from normal does not present itself, or that fracture bordering on explosion does not occur.

If stock enters the dryer with 40% condition, it cannot be subjected to an air condition that would show a regain of 13% without serious results. Neither can the same stock be subjected to an air condition that would show 2% regain and be expected to leave the drier at 13%. The air condition cannot at any time during the drying schedule be lower than that which would produce the desired final condition in the wool. There can be no drying until the temperature of the wool and water is raised to a point of evaporation. When evaporation starts, it must be slow and carried on with a very humid air; slow to prevent surface drying and wilting, and with humid air for much greater and faster penetration. Sudden shocks caused by too rapid changes from one section of a dryer to the next are certain to cause damage nearly equal that caused by excessive temperatures.

Rayon and Silk

"In drying rayon," said Dr. F. Bonnet, Viscose Co., "it must be remembered that we are dealing with a carbohydrate. If heated in a dry atmosphere for some time, the yarn gradually turns yellow and serious changes in the physical properties take place. The dye absorption, the tenacity, extensibility, and ability to crepe are all lessened, the degree depending upon the temperature and the time of exposure to the excessively dry condition. For safe ordinary drying it has been recommended that temperatures should not exceed 130° F., and the natural rayon dried at this temperature for about 4 hours shows no

appreciable decomposition. However, in the commercial operation of dryers temperatures of around 180° are commonly used and, for the most part, with fairly successful results."

Continuing, Dr. Bonnet pointed out that considerable attention has been paid to controlling the dry bulb temperatures of dryers, but comparatively little to that of the wet bulb. Assuming that the moisture content of yarn is approximately the same at high as it is at ordinary temperatures, for a drying temperature of 180° F., for example, it would be necessary to maintain a wet bulb temperature of 134° F. to have a 30% relative humidity in the dryer, and the yarn could not be dried below a 5 to 6% moisture content, which would protect it from any appreciable change in composition or properties.

In drying sized warp yarn on a slasher, the sizing material itself seems to be quite as much or even more affected than the yarn, givng rise to decomposition products which are practically impossible to remove from the yarn if they have not also affected the yarn. The slightly tighter ends in a warp will tend to come in more intimate contact with the hot steam drum, become dried out first, and then over-dried, with a change in composition and dye absorption. In finishing, the hand and quality of a fabric can be quite ruined by dead drying. Once a rayon fabric has been over-dried, no subsequent treatment with emulsions, soaps, or finishing oils will give it the hand and quality it would otherwise have had.

In his discussion of silk drying, Erb N. Ditton, Gotham Silk Hosiery Co., confined his remarks to drying of hosiery. Mr. Ditton described the three general types of hosiery drying equipment and called attention to the advantages and disadvantages of each type. According to the speaker, the physical properties of silk are not affected by the relatively low temperatures used and the short time of contact in hosiery drying. The chief objectives are removal of moisture, making the stocking conform to its proper shape, pulling of the stocking to its normal length, putting of hosiery in a flat condition, and setting of the size or finish to give the hosiery the desired appearance. In this special case, drying itself is secondary to the other objectives.

Drying Machinery

Textile drying from the viewpoint of the machinery builder was discussed by James Hunter, James Hunter Machine Co.; Lucien Buck, Proctor & Schwartz, Inc.; and Bliss Jones, Philadelphia Drying Machinery Co. Mr. Hunter called attention to improvement in air circulation by use of centrifugal fans, relocation of heating coils, zoning, and other refinements which increase the productive capacities of modern dryers, reduce cost of operation, and prevent listing, oil spots and other defects.

With regard to wool, Mr. Hunter stated the preservation of felting properties is of special importance. Maximum temperatures of 265 to 270° F. have been used without injury to fibers with controlled apportionment, by means of zoning, affording temperature reduction in direct ratio to drying increase. The danger point is approached when the material becomes dried to about 10% moisture content. As the material is passed through the dryer with increasing stages of dryness, less heat is applied. Excessive surface (outside of fiber) drying or contact with any heated metallic part of the dryer is the cause of physical degrading. So long as vaporization does not over-exceed diffusion and there is even a minimum of moisture present, there will be a protective, resisting film. From about 5% to bone-dry is the line of demarcation between safety and weakened, brittle stock, or tendered fabrics.

Mr. Buck stated that moisture or water is present in textile fibers in several forms: (1) free or excess water held mechanically in the minute channels between the fibers, having a vapor pressure equal to free water; (2) surface moisture carried as a film or layer and probably held by surface tension also having a vapor pressure equal to free water; (3) water of inhibition or "soaked" moisture, which has penetrated the tissue of the fiber, essentially colloidal water which varies with the surface moisture by diffusion and has a vapor pressure less than that of free water; and (4) water of hydration which approaches combination with the substance and exerts no vapor pressure.

The liquid which is on the surface of the material will be readily evaporated, that moisture which is in the interior must diffuse to the surface before further evaporation can occur. Heated air passing over the moist surface of the material drops in temperature toward the wet bulb temperature, inasmuch as the evaporation of water is accomplished by a definite absorption of convected heat. The sensible heat that is apparently lost, due to evaporation, is actually converted into latent heat and, neglecting conduction and leakage losses, the total heat of the air is unchanged during its progress through the dryer. This heat supply must be maintained in order that evaporation may proceed, and the temperature of the material will remain substantially at the wet bulb temperature or the temperature of evaporation so long as the moisure on the surface is evaporating freely, due to the large absorption of heat. However, as soon as the moisture content of the material falls to about 20% or 15%, and from then on until the last traces of moisture are removed, the temperature of the material will gradually rise, approaching the dry bulb temperature of the surrounding air, and then will correspond when the vapor pressures are in equilibrium.

Mr. Jones asserted that, while temperature is important, air movement is the greatest single factor to be considered in drying. In one type of modern dryer a new principle of circulation is employed in which air is blown through the cloth. At the entering end the temperature is high, and, as drying proceeds the temperature is lowered. In some cases cool air is entered toward the finish of the operation, so that the cloth leaves the dryer near or at room temperature. The rapidity of drying is governed largely by the velocity and pressure of the air. The heart of the unit is a fan of the axial flow type which prevents back flow and exerts a uniform pressure throughout the length of the blade. Other refinements include an extended surface type of heater, streamlining of the inside of the machine, and baffles to reduce eddy currents.

Open Discussion

Points brought out by various speakers during the open discussion included the following: (1) There has been undue stressing of economy, and mills should pay more attention to quality. (2) There are probably three critical temperatures for each fiber, depending on whether the fiber is dry, wet, or on the borderline between wet and dry. (3) The effect of heat on dyes requires consideration. (4) the pH of the goods entering the dryer is a factor which must not be overlooked. (5) In determining the cheapest way to dry and still turn out a satisfactory product, the value of the product is also a factor to be taken into consideration.

PLUSH WARPS

Can be prepared faster and better

By Ghent Roy Robertshaw

BEAMING plush warps direct from dyed chains presents certain difficulties. The chains are so bulky that they are difficult to handle, and the speed of the beaming machine is necessarily limited. Where the mill runs a large number of looms on the same construction, the method described here will allow a saving of 50% or more in the cost of producing beams, and uniformity of tension is assured.

Suppose, for example, that the construction calls for loom beams of 800 yd., with 4,800 ends. Cross-laid warps of 4,800 yd., 1,200 ends, are secured (linked warps are used if the yarn is to be dyed black in a circulating-type machine). As the warps come from the dryer after dyeing, they are cross-laid and baled, as was done by the yarn mill originally, to facilitate handling. Each warp of 4,800 yd., 1,200 ends, is made into four section beams of 4,800 yd. each. Four section beams are set up in a beam stand ready for the re-beaming operation. (Warps can be specified that will make up even multiples of four section beams; or groups of six, eight, or ten section beams can be handled—but for the sake of simplicity a unit handling four section beams is described here.)

The tension control that is the heart of the method is shown in Fig. 1. The machine can be made by the addition of parts to a double-gear beamer. Rolls *A* are 30 in. in circumference and covered with felt to give a good grip on the yarn and prevent chafing. Rolls *B* are 8 in. in diameter, made of steel, and placed in brackets so they can be moved within ¼ in. of rolls *A*. The loose rollers *C* merely serve as guides. Fig. 2 shows how the drive is arranged. The gears *E* (both sides of machine) are attached to the main rolls *A* and are driven through the coupling gears *F*. The latter can be slid out of mesh so the main rolls can be manipulated independently when the beams are being drawn in. The drive is, of course, synchronized with the loom-beam drive, the tension frame being placed about 1 yd. from the section-beam stand and 3 yd. from the beamer.

Yarn from beam No. 1, as shown in Fig. 1, is brought forward around the loose roller *C* nearest the beamer, up around *B*, back around *A*, and forward to the beamer. Roll *B* is then slid into contact with *A*. This places the yarn in contact with *A* for a good part of its circumference and insures a positive pull. The other section beams are drawn around their respective rolls in the same manner, and three fixed rods just ahead of the beamer keep the sheets of yarn separated. The sliding coupling gears are moved into position and locked, and weight tensions are placed on the section beams to prevent their over-running.

A reed without a removable top is preferable, and it should have a vertical space of about 3 in. The best method is to start with section beam No. 1 and lay in one end to each dent; following with Nos. 2, 3, and 4, so that there are four ends to a dent. The writer thinks the best method of laying-in the ends is the English system of drawing all the ends in the dent at the same time with knives made from hard wood. The ends are then tied to the weaving beam and the required number of yards run off.

The next operation is to pick a lease. Three movable rods are placed between the sheets of yarn where the permanent rods are in place and brought near the loom beam. The first and second ends are dropped, the third and fourth lifted, etc., and a flat stick about 2 in. wide inserted. When the stick is turned on edge, a lease may be drawn in the shed between stick and middle rod.

For mills desiring two leases—one for the top and one for the bottom piece—the procedure is to drop the first thread, raise the second, drop the third, raise the fourth, etc. When the flat stick is inserted and turned on edge, two sheds will be seen because of the crossing of the second and third threads between the stick and the middle rod.

The flat stick is kept in position until the full beam is cut out, replaced by an empty beam, and one turn of yarn made on the new beam. The flat stick is then turned on edge and a pointed rod about 8 in. in circumference inserted in its place. The required yardage is run with the rod in place, and the next lease can be made by bringing the movable middle rod between the section-beam sheets forward and inserting a lease in the shed thus formed.

Where two leases are required, it is possible to use two rods to preserve the two sheds obtained as previously mentioned. It is also possible to get two leases with only one rod with some extra work. A single lease is first run (first and second threads are down and third and fourth are raised, as described) and then the first and seconds ends are raised, the third and fourth lowered, etc., and the second lease run. This might be better than having two rods, but all warps would have to be leased single in the first place.

Properly set up, the unit will produce warps with uniform tension, the section beams will run out at the same time because of the uniform pull, and the beamer can be run at a high speed. Section beams made from cones or bobbins can, of course, be handled with equal facility.

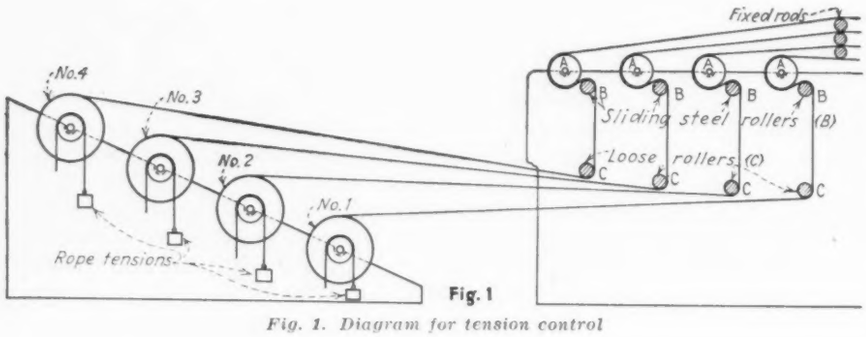


Fig. 1. Diagram for tension control

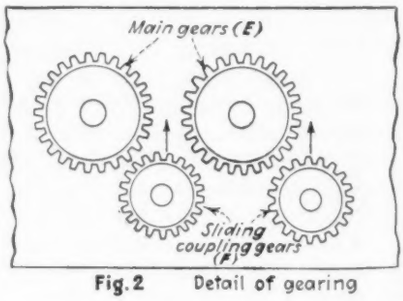
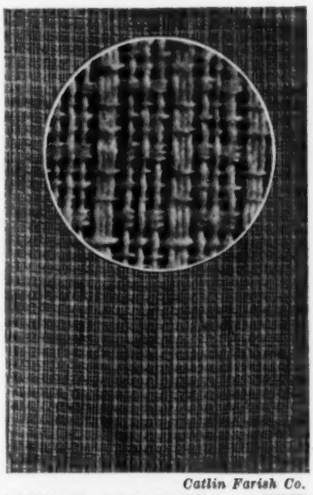


Fig. 2. Drives for rolls A of Fig. 1

STAPLE COTTON FABRICS

By John Hoye

ANOTHER instalment of the most complete treatise on the constructions, finishes, and uses of cotton cloths ever written. The fabric magnifications are 5½ times true size, which is about the average magnification of the pick glasses commonly employed by cotton men.



Catlin Farish Co.

CARDED PAJAMA CHECK
36½", 72x80, 4.70

Dimity Cords and Checks

Dimities are sheer, light-weight, corded or checked fabrics made with carded or combed yarns. Corded dimity effects are formed by crowding and weaving two, three, or more warp threads together. Check effects are formed by weaving two, three, or more warp and filling threads as one in plain and fancy basket weaves. The name *dimity* is descended from a Greek word meaning "double thread." Dimity checks made with carded print-cloth yarns are referred to as *pajama checks*. A fine combed quality is made with cords spaced to imitate a piqué cord and is referred to as a *piqué dimity*.

Finishes Used: Finer combed dimities are usually mercerized and given lawn, organdy, or soft underwear and nainsook finishes. Carded dimities (pajama checks) are usually given nainsook or back-filled finishes. Dimities are sometimes printed and plain finished.

Uses of combed cords and checks: In white, pastel shades, or printed effects for summer dresses, infant's wear, children's dresses, underwear, collars, cuffs, waists, aprons, bedspreads, curtains, carriage covers, art needlework.

Uses of carded checks (pajama checks): Men's and children's union suits, undershirts, pajamas, shorts, etc. In printed cord effects for dresses, etc.

Examples of Combed Dimity Cords and Checks			Examples of Carded Dimity Checks (Pajama Checks)		
36"	94x68	8.95	36½"	64x60	5.75
36½"	114x64	7.50	36½"	72x80	4.70
36½"	116x76	7.85	36½"	88x88	4.00
38"	134x64	5.20	(piqué corded dimity)		

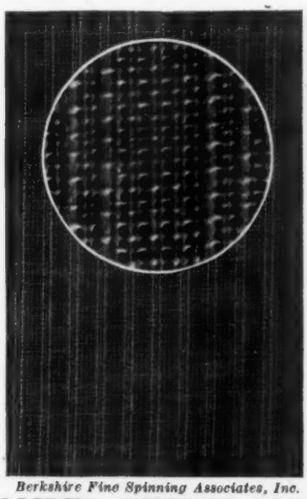
Broadcloth

Broadcloth is similar to poplin [to be discussed in a later instalment of this series] in having a rib effect and a plain weave. The rib, however, is finer and not so pronounced. Broadcloths are closer woven (of higher construction), the yarns are finer, and the weights run between 4.00 and 4.75. They are therefore lighter-weight cloths than poplins.

The best-quality broadcloths are made with combed ply yarns, usually 100/2 or 80/2, and the standard count used is 144x76. Finer qualities are made using 120/2 or finer yarns with a higher construction. Many sub- or lower-count cloths contain ply and single and all single yarns, as well as carded yarns. In the finest English broadcloths long-staple Egyptian cotton is used, and in the finest domestic qualities American Egyptian is used. Broadcloths are also made with slub yarns, which form shantung effects. Some cloths called broadcloths employ only print-cloth yarns.

There are some qualities of colored-yarn striped broadcloths made. These usually consist of single 40s combed vat-color yarns and contain all-over dobby-woven effects, as well as stripings.

The various plies used in both broadcloths and poplins are designated by the terms 2x3, 2x2, 2x1, 1x3, and 1x1.

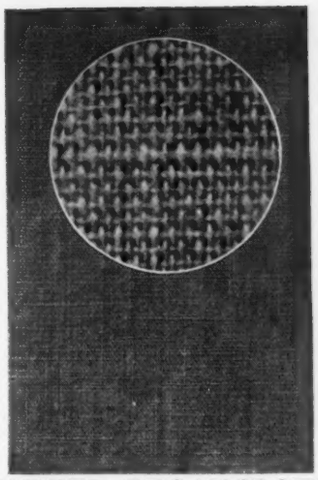


Berkshire Fine Spinning Associates, Inc.

COMBED DIMITY CORD
36½", 116x76, 7.85

Because of their construction, broadcloths, like poplins and reps, usually have greater tensile strength in the warp than in the filling. However, to meet the corset-trade requirements, some qualities are made with more strength in the filling, and this is usually accomplished by the use of three-ply yarns. These particular cloths are made, 1x3 and 2x3 and are usually 40½ in. wide. Also produced for this trade are cloths of similar construction to broadcloths but containing rayon warp yarns and single or ply cotton filling yarns. Both the rayon-warp and the all-cotton broadcloths, when finished for the corset trade, are referred to as *corset batistes*.

Finishes used: Finished broadcloths, especially combed-yarn qualities, are soft and silky. They are usually mercerized and chased. Broadcloths are bleached or dyed (with vat colors) and printed (shirting prints, dress-goods prints, etc.). As is usual with most wash-goods fabrics, broadcloths are given a full shrinkage, such as is obtained by Sanforizing. The cheaper carded broadcloths are usually chased or calendered.



CARDED BROADCLOTH
(Print-Cloth Yarns)
37", 100x60, 4.10

Uses: Shirts, blouses, waists, uniforms, smocks, infants' and boys' suits, pajamas, union suits, shorts, etc.

Widths	Constructions
36½" 37" 37½" 38" 38½"	Combed, 128 to 164x84 Carded, 80x56 to 128x68

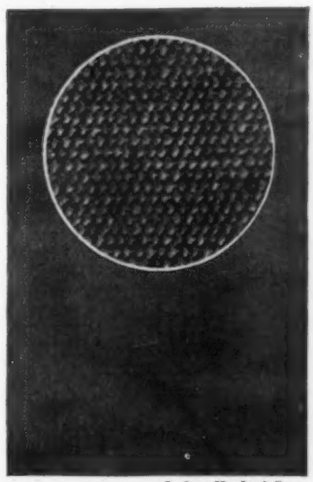
Warp Yarns		Filling Yarns
40s	50s	60s (combed)
80/2	100/2	120/2 ply (combed)
30s to 50s		40s to 60s (carded)
20s to 25s		16s to 20s (carded and combed corset cloths)

Combed ply yarns:				Combed single yarns:		
37"	144x76	4.40	2x2	37"	144x76	4.30
37"	164x84	4.55	2x2	37"	136x60	4.20
37"	128x68	4.40	2x2	37"	128x68	4.20
37½"	160x80	4.86	2x2	37"	110x56	4.15
40½"	144x76	2.80	2x3	40½"	96x68	1.95
40½"	128x68	2.70	1x3	40½"	96x60	2.30
37"	128x68	4.30	2x1			

Carded singles:					
36½"	80x56	5.10	40½"	96x62	2.40
36½"	80x60	5.00	37"	100x60	4.10
37"	80x60	4.50	37"	112x60	3.85
37½"	90x60	4.32	38"	116x60	4.15
40½"	96x64	2.10	37"	128x68	4.20
	37"	136x60	4.00		

Combed colored yarns:					
37"	128x68	4.20	37"	124x64	4.45
37"	136x60	4.20	37"	112x60	4.75

Rayon warp, cotton filling:		
41"	144x75	150 denier warp, 60/2 filling
40½"	96x60	150 denier warp, 40s filling



Joshua Hoyle & Sons

COMBED BROADCLOTH
37½", 160x80, 4.86, 2x2

TEXTILE WORLD ANALYST

Textile sentiment and fact takes sharp turn for the better

Mill Activity Continues Above Last Year: Textile mill activity during the first four months of 1936 was approximately 11% over that for the corresponding period of 1935—and about 7% over that for the corresponding period of what is assumed as a "normal" year—the eight-year average 1924-1931. All the fibers were up on last year except silk. Consumption of cotton was about 13% over 1935, wool 4% over, rayon 18% over, but silk 18% under.

THERE was a very definite improvement in both sentiment and fact in the textile industry during May. An important contributing factor was the invalidation of the Guffey Act by the Supreme Court, which not only placed the Ellenbogen Bill in the discard but increased the already excellent chances of a similar decision on the Wagner Labor Relations Act when that comes before the Court.

Still another encouraging factor was the approach of a special Christmas for the Veterans. No matter how an individual manufacturer may have felt about the bonus when it was in the form of pending legislation, it has now been transformed from a controversial subject to a business influence. In textiles, the wool division particularly is anticipating an effect from this source.

Both reflecting and causing better sentiment were trends in certain branches of the markets, such as the remarkable maintenance of demand for rayon yarn, the continued strength in the wool industry, and the arresting of the decline of manufacturing margins in print cloths, accompanied by pick-up in demand for them.

The net result of all this is that optimism is reappearing and expectations are for a good showing during the balance of the year—with possibly a less than seasonal decline in the summer and certainly a strong situation in the fall.

Although the above is offered without guarantee, that's how it looks from here.

Raw cotton on the spot market fluctuated within the narrow range of 17 points during May and there was little change in this group of TEXTILE WORLD'S price index numbers. The cotton yarn index was the hardest hit, declining three points despite the steady raw material. Although indices in the wool group show little change, prices actually declined from April 1 to May 1 on the basis of about 4c. per lb. for clean wool, but then turned around and made up the loss by June 1.

Brief high-lights of the several markets follow:

Cotton: As indicated above, the picture in cotton goods changed in the latter part of the month. The last week, particularly, saw good business on print cloths. The degeneration in manufacturing margins, which had been going along for several months, was checked and in fact in the last week in May there was even a fractional advance in the print cloth margin, as will be noted in Table I. . . . In carded yarns, unfortunately, the trend was in the other direction, and there was a decline in manufacturing margins, as will be noted from Table II.

Wool: The better sentiment noted in the wool goods market in April found material expression in firmer prices in raw materials during May. Women's wear lines have been opened for fall and sellers are optimistic that a good season lies ahead. Current business at retail is called encouraging both in men's and women's lines.

Rayon: Movement of rayon goods held up well through May and continued strength is anticipated in June. Curtailment of production of rayon fabrics last month strengthened the market undertone although it did not have any upward influence on prices.

Silk: The raw silk market has been a dull uninteresting affair. Weavers have been buying more actively but their total was too small to have material effect. Fabric trade was moderately active; strong call for crush-resist velvets was a feature and a good second year is forecast for this new line.

Knit Goods: May brought further curtailment in hosiery which is having a healthy reaction but it is believed that this has to go further to be really effective against seasonal lull. . . . Lightweight underwear sales have been brisk. Certain large firms which opened fall lines belatedly this month reported good response at unchanged prices. . . . Outerwear situation is very satisfactory; current call for most lines is good.

TABLE I. CARDED FABRIC MARGIN

Date	Margin in cents	Date	Margin in cents
August, 1933....	21.4	July, 1935.....	15.2
October, 1933...	19.1	August, 1935...	17.1
January, 1934...	18.4	September, 1935	17.9
April, 1934.....	17.6	October, 1935...	17.7
July, 1934.....	15.5	November, 1935	16.4
August, 1934....	16.6	December, 1935	16.2
September, 1934.	18.6	January, 1936...	17.2
October, 1934...	17.4	February, 1936..	16.5
November, 1934.	15.8	March, 1936....	15.5
December, 1934.	16.2	April, 1936.....	14.3
January, 1935..	16.2	May, 1936.....	14.3
February, 1935..	16.0	May 6....	14.2
March, 1935....	15.9	May 13....	14.2
April, 1935.....	16.1	May 20....	14.2
May, 1935.....	16.0	May 27....	14.4
June, 1935.....	16.5		

TABLE II. CARDED YARN MARGIN

Date	Margin in cents	Date	Margin in cents
August, 1933.....	23.5	July, 1935.....	14.3
October, 1933...	20.0	August, 1935....	15.3
January, 1934...	18.3	September, 1935	15.4
April, 1934.....	15.9	October, 1935...	15.8
July, 1934.....	14.7	November, 1935	16.3
August, 1934....	15.3	December, 1935	16.3
September, 1934.	15.6	January, 1936...	18.4
October, 1934...	14.6	February, 1936..	17.5
November, 1934.	13.5	March, 1936....	16.3
December, 1934.	13.5	April, 1936.....	15.6
January, 1935...	13.5	May, 1936.....	14.8
February, 1935..	13.9	May 6....	15.2
March, 1935....	14.4	May 13....	14.7
April, 1935.....	14.1	May 20....	14.5
May, 1935.....	13.8	May 27....	13.9
June, 1935.....	14.5		

Textile World's Price Index Numbers

STARTING with January, 1936, TEXTILE WORLD has revised its price index numbers to a 1923-25 base, to correspond with current statistical practices. Those who wish to continue with indices based on July 1, 1914, for chart purposes or otherwise, can secure conversion factors to change the new figures to the old by writing TEXTILE WORLD, Statistical Dept., 1427 Statler Bldg., Boston, Mass. Figures on cotton manufactures, Aug. 1, 1933 to Jan. 6, 1936 include processing tax.

	Cotton Index Numbers				Wool Index Numbers				Silk Index
Date	Cotton	Yarns	Gray	Colored	Wool	Tops	Yarns	Cloth	Raw Silk
1923-25 average	100	100	100	100	100	100	100	100	100
1930 average...	50	61	61	72	58	61	72	90	109
1931 average...	32	58	46	59	46	49	59	71	32
1932 average...	24	37	37	60	36	40	52	57	21
1933 average...	39	56	55	50	53	59	62	80	21
1934 average...	61	67	70	62	63	70	75	91	17
1935 average...	60	68	67	69	56	58	70	88	22
July 1935.....	61	68	65	69	56	59	70	89	20
Aug. 1935.....	58	68	66	69	56	59	70	89	23
Sept. 1935.....	55	66	68	69	58	60	70	89	25
Oct. 1935.....	57	68	68	69	60	61	73	92	27
Nov. 1935.....	60	70	69	72	62	65	75	92	27
Dec. 1935.....	60	71	69	72	64	66	76	92	26
Jan. 1936.....	48	67	63	68	67	73	75	93	26
Feb. 1936.....	42	62	58	67	72	81	77	93	24
Mar. 1936.....	42	61	57	66	73	81	77	93	23
Apr. 1936.....	43	60	55	64	68	75	76	90	22
May 1936.....	43	57	54	64	67	75	76	90	21

Fashion at the Mill

By John Black
Assistant Editor
TEXTILE WORLD

Service to textile manufacturers feature of Fashion Group's five-year record

IN 1931 an embryonic idea, sponsored hopefully by 75 pioneers at a luncheon in a New York hotel; in 1936 a solidly established organization of 800 members, and constituting through its international affiliates, one of the most powerful fashion influences of the world——

That, briefly, is the story of The Fashion Group. From the viewpoint of the textile manufacturer, however, the story is more pointed. It is a record of increased turnover, greater profits, and added prestige for fashion-rightness. Both individually and collectively The Fashion Group has made a significant contribution to the textile industry during its lifetime. A glance back into the nineteen twenties confirms this statement. Conditions in the textile industry with respect to style were far from satisfactory in the 1925-1930 period. The constantly growing importance of fashion, the constant shortening of the life of individual styles—these factors were creating a pyramid of vexing problems. Mills found themselves burdened with unsaleable merchandise, heavy losses were incurred, due to the quick obsolescence of fashions. And the garment and retail trades were confronted with substantially similar problems.

The cause of the trouble was the same in all three fields: lack of speed, system and accuracy in the collection and dissemination of fashion data; lack of coordination in fabric color and design in planning a firm's line. Stylists in the respective divisions recognized the need for action, and it was to solve this, among other problems, that The Fashion Group was formed. Close attention to the style problems in the manufacture and distribution of textiles has been one of its chief purposes since the start. The 75 pioneers who launched this most novel of professional associations in 1931 included nu-

merous stylists employed by textile mills. Since then the mill membership in The Fashion Group has grown steadily until today, most of the outstanding companies in all major branches—cotton, wool, silk, rayon, knit goods, etc.—are represented in the organization.

The value of The Fashion Group's activities to the textile industry is further shown in a study of its history. During those five years, under the competent guidance of Mrs. Ethel M. Kremer, executive secretary, the organization has found solutions for many types of intricate mill problems bearing on styling and merchandising. In 1932, the Group sponsored the Fashion Merchandising Lectures at the Metropolitan Museum of Art, New York. This series aimed, through improvement of good taste in fashion merchandise, to aid sales appeal; the lectures were for professional stylists exclusively and many mill representatives attended. In 1933, the Group staged a successful Cotton Show, which emphasized both the progress of cotton and the growing importance of the Group itself. Another 1933 feature which was repeated in 1934 was the lecture series on French fashions given by Marjorie Howard, whose rôle in the Paris fashion world is unique; she might best be described as America's "unofficial observer" on style.

With the advent of 1934, The Fashion Group had become a going concern. It was settled permanently in its present spacious headquarters in Radio City, New York. The time was now ripe for an undertaking of really ambitious proportions, and in the spring of 1934 the Group held its memorable exhibition of "Man-made Materials: Textiles and Plastics." During 1935 the Group sponsored two major events: the Fashion Train-

ing Course, for fashion students, which instructed prospective mill stylists, among others; and the Fashion Futures, the brilliant fashion show staged last September at the Hotel Astor, New York. Both were successful and will be repeated this year. A third highlight for 1936 is the Handcraft Exhibition organized by the Handcraft Division of the Group in cooperation with fabric manufacturers, yarn mills, pattern companies and sewing machine manufacturers. This exhibition of handicraft is increasing consumer call for their products.

As is indicated, many constructive activities are planned by the Group for the 1936-7 season under the administrative leadership of its new president, Mrs. Winifred J. Ovitte, fashion editor of *Women's Wear Daily*.

The Fashion Training Course has a double purpose. It was established for: (1) beginners in the fashion industry; and (2) professionals who wish to broaden their scope of activity. The principal topics covered are design, home furnishing, newspaper and magazine fashion work, fashion publicity, display and cosmetics.

Fashion Futures is viewed by the Group officers as one of its most significant accomplishments. This event serves the mill in various ways. It supplies authentic information on fabric design and color trends of the opening season, thus enabling manufacturers to avoid excessive output of lines which are not fashion-right. The selection of official colors by the Group for promotion at this fashion show likewise helps the mill.

Another important accomplishment by the Group—and in this textile manufacturers, garment manufacturers and retailers benefit equally—is to explode the fallacy that

there need be anything very secretive or stealthy about the gathering of style data. Like others in the fashion field mill stylists had leaned strongly to this traditional idea. The Fashion Group, however, was determined to modernize thought on this subject—to improve the whole method of assembling and distributing style data. The members were convinced that the gathering and distribution of fashion statistics could be systematized and coordinated resulting in better work in less time, and in no way impairing the individual artistry of the stylists.

We can best describe the plan by telling how it has operated in the hosiery industry. In May, 1934, hosiery stylists employed by a dozen foremost hosiery mills and members of the Group organized a section of The Fashion Group and elected Ruth L. Mills, fashion director of NoMend Hosiery, Inc., as chairman. Miss Mills then developed a cooperative method of assembling style information which proved so successful that it is now in permanent operation. The chief problem facing hosiery stylists in getting color and style information had been that each stylist would separately visit fabric manufacturers in the silk, cotton, rayon, wool, etc., branches to get data necessary to plan hosiery suitable to the new fashion in ensembles. Since they called on some four or five mills in each fabric branch it goes without saying this method was cumbersome and wasteful.

A new plan was developed by which all hosiery stylists went together to each manufacturer on a date arranged in advance. The success of this method, Miss Mills stated, definitely proved that fashion work can be made cooperative without becoming regimented or standardized and without curtailing in the slightest the originality of each company's styling job. Further, it was a boon to fabric mills, in that it enabled them to give data to all stylists, at once, thus saving time. There are two important rules to the plan: (1) no hosiery stylist whose company also manufactures broadgoods is permitted to see the fabrics of a competing company; (2) during the collective showing each stylist has complete freedom to make notes privately without interruption.

The hosiery innovation gives an idea of the practical value to mills of the Group's work. However, manufacturers also are aided in other ways. For example, we may cite the Group's three major mediums for dissemination of fashion data: (1) the monthly luncheon, which has now become nationally famous as a source of style information; (2) committee and sub-division meetings; (3) distribution of Group literature under the guidance of Miss Emma Lou Fetta, who has been chairman of the publicity committee since the Group was formed and who now edits the *Monthly Bulletin*.

Recently The Fashion Group reorganized its sections, and the new line-up of six divisions offers a comprehensive idea of the organization's coverage: (1) accessories, hosiery, intimate apparel; (2) cosmetics, millinery; (3) fashion handcrafts; (4) home furnishings; design, other than apparel; (5) ready-to-wear; fabrics; (6) sales promotion, fashion promotion, display.

Here then, in brief, is The Fashion Group's five-year record of accomplishments. For all of its significant attainments to date, the members do not view the organization as having reached its peak. On the contrary, they will tell you it has just begun to grow!

The following photographs are credited to photographers: Susan Bates, to *Blackstone*; C. E. Cleveland, to *Wynn Richards*; Grace Cornell, *Delar*; Edith Hatch, *Bachrach*; Helen McGrath, *Gabor Eder*; Grace Walton, *Tony von Horn*; Vera White, *Chidnoff*.

ADVERTISING PAGES REMOVED

THE OVERSEERS' CORNER

Developing Leaders

By John Williams—Based on actual mill notes

I HAD quite a discussion with a friend of mine the other day about developing natural leaders among the workers. It was my contention that certain individuals turn up as sort-of unofficial spokesmen for the help, and that overseers and the superintendent should make use of this fact. You have your organization down through overseers and second hands, but I think it is a mistake to think that the matter ends there. A person the rest of the workers look up to really has a place in the organization also, even though he or she has no official title. The way that I have always handled things is to make sure that the overseers and myself get to know these people and make them feel that they have a certain importance.

It is difficult at times to deal with workers as a group, but if you can talk with certain individuals you can frequently establish a better basis of understanding. For example, if you are going to make some changes, I think that the best plan is to explain things carefully to the workers, and then go over everything again with the natural leaders. This gives you a chance to check up and make sure that everything is understood, and also to bring to light any difficulties that may have been overlooked. If you make sure that the leaders know exactly what is going on, the chances are pretty good that the rest of the help will accept the opinion of their spokesmen and everything runs along smoothly.

I found that my friend did not agree with me at all. He said he thought it was a mistake to single out any individuals and treat them differently from the rest of the workers. Such action, in his opinion, fostered jealousy, and there was always the possibility that such leaders would begin to take themselves too seriously and think that they should be allowed special privileges and some "authority." He further contended that if the overseer and superintendent consulted with such individuals the rest of the workers would get suspicious and there would soon be talk about "spies."

As in most discussions, my friend didn't convince me, and I didn't convince him, but he did point out several pitfalls that I will try to avoid.

Politics—Right and Wrong

Editor, Overseers' Corner:

There is a right way and a wrong way for mill officials and overseers to mix in politics. We all know the wrong way would be for a Manager to openly ask his employees to support a particular candidate or a particular political party.

Desired results can be attained, however, in a rather subtle fashion. A Manager can give his employees accurate information about tariff, taxation, labor laws, Townsend plans, social security legislation, etc., and it can be done in such a manner that the employees will never suspect that the "boss" is mixing in politics.

An employer through his foremen-overseers can disseminate some highly constructive material to workers. Lunch hour discussions, employee magazines, employee letters or circulars can all be utilized to get economic "truths" down to the folks in the mill.

In times like the present workers should receive good, wholesome information on all general economic or political questions. They should not be forced to depend on the political or radio demagogues that have been so popular during the past few years.

W. G.

Nobody Is Perfect

Editor, Overseers' Corner:

While anyone with an ounce of brains must at once agree that perfect mill superintendents or overseers are not to be found, nor ever will be, that is a somewhat dangerous dogma to dwell upon. What we all need to realize is that, while perfection cannot be absolutely attained to, it can be approached, and the man who works hardest to approach it is the man who will approach closest to it, other things being equal.

So far as Williams' notion about others thinking him hardboiled, crazy or a softy is concerned, it is quite possible, unless he is superior to the most of us, that he is tainted with all three of these characteristics. All three of these, unlike perfection, are matters of degree, and it is my private hunch that all of us are in some small measure, or along some certain lines, crazy, soft and hardboiled. Neither do we wear these characteristics on the surface. The craziest man usually thinks himself the most intelligent; the man who has progressed farthest mentally is liable to be humbled by what he has learned.

Many a man who appears exceedingly hardboiled has only donned a mask to cover a degree of softheartedness which he personally regards as a weakness, and those who are most hardboiled at heart quite often adopt an ingratiating smile and manner. Strangely enough, our weak points are quite often our strong ones also, and we do well to examine our supposed weaknesses with all care, to determine whether they have any redeeming features, before we put too much time and effort into the proposition of getting rid of them.

J. H.

The Boys Discuss Politics and the Mill

Editor, Overseers' Corner:

"Any of you fellows read the folder in last week's pay envelope?" asked Mike. "The one about the Wagner Labor Act?"

The noon-day boiler-room forum was on in full blast. The boys had been engaged in a frank discussion of the merits and demerits of Mike's "new" used car and he wanted to change the subject.

"Sure, I read the circular—all about the angles of the different labor stuff Congress has put through." Joe, who kept a section of automatics in tip-top shape in the weave shop, was speaking. Joe was inclined to be dour and pessimistic, in the manner of loom-fixers.

"From now on we're liable to get plenty of literature in our envelopes. Anyway, until after election," said Joe, warming to the subject. "Not that the dope about the labor legislation wasn't pretty straight, but you can't help feeling the office is trying to put on a little pressure."

"Well, what if they are?" retorted Mike, who felt it necessary, as second-hand of the finishing room and therefore tacitly its spokesman, to take the opposite side of any debate. "The super and the mill owners are citizens. They got a right to an opinion, too."

"Sure they have," replied Joe, "but that doesn't mean they ought to tell the

CONTRIBUTIONS

Contributions to "The Overseers' Corner" will be paid for without regard to length. We will be glad to use letters discussing the narrative on page 111 or any other pertinent matter whether of mechanical, managerial or just plain human interest. Those who contribute kinks or practical helps will be paid additional for an appropriate sketch to illustrate their device. It is not necessary to submit finished drawings. If these pages interest you—contribute something to them to interest others. Address Editor, Overseers' Corner, Textile World, 330 West 42d St., New York, N. Y.

boys in the shop how to vote, come election time. Does more harm than good trying to influence the help that way."

"How does it?" countered Mike. "The office isn't going to bat for anything that's liable to throw a monkey wrench into the business. If they're trying to keep the mill going isn't that for the help's benefit?"

"What I mean is this," explained Joe. "If the super or the office gives us the idea they're trying to tell us how to cast our ballot it's just going to antagonize a lot of workers and make 'em vote the opposite. It ain't sense, but it's human nature."

"I'll say it ain't sense," said Mike. "The boys in the mill will listen to any politician who throws a lot of words around, but the help is tied in a lot more with the mill owners than they are with the politicians. If we got jobs that's something. But promises from orators don't butter any parsnips."

"That's not the point I'm trying to get across," explained Joe. "It's just this. Anybody'll grant the mill owners a right to their opinions. They've got a right to let the help know how they feel, just like any other citizen. But to do it in work hours or by circulars in pay envelopes is going about it all wrong. It gives a bad impression, not only to the workers, but to the community."

"Why should it?" asked Mike. "The office wants to let the help know their angles on different parties and legislation. They know the help gets the other side of the story from any number of places: newspapers, radio and speeches. The mill owners want the workers to see their side of the picture, too."

"Nobody is denying 'em the right to speak their piece," said Joe, "but the way to do it is what we're discussing. Doing it in the mill does 'em more harm than good, is my opinion."

"Well, we ain't mind readers," said Mike tartly. "How do you figger the office can have its say without getting the help down on 'em?"

"There should be plenty of ways," answered Joe. "Send the circulars to the homes of the help, where the missus could speak her piece too. Or have the mill owners indorse the literature of the local party they believe is the best."

"You mean to say the help is so doggone sensitive they resent being told the office's slant on politics during working hours?" "That's my opinion, anyway," concluded Joe.

"Well, maybe you're right," admitted Mike, heeding the chorus of assent from the rest of the assembly. The blast of the five-minute whistle had brought the forum to adjournment.

"And now I've got to go to work," grinned Mike as a parting shot, "and try to make some of that burlap the weave shop sends down into something that looks like cloth."

ALBERT P. KRAG

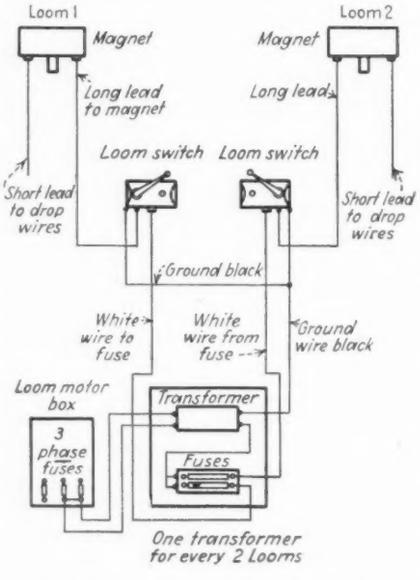
Practical Helps for Overseers

Transformer Wiring for Stop Motions

A number of mills that had the old type of generator for drop wires and feelers are changing to the newer transformer type that is connected from the motor.

It has often been my contention that loomfixers should know more about the wiring of this type of transformer, as I have seen looms stopped for hours, due to the fact that there was trouble and the mill had to call in an outside electrician.

The sketch shows the proper method of wiring and should enable the fixer



to install any additional transformers, or to locate trouble in the ones that have already been installed.

JOHN PICONE

Finishing Cotton-Wool Mixtures

In finishing cotton-wool mixtures, the tendency of the cotton colors to bleed while in the wet state and stain the white or lighter cotton shades makes it necessary to change the routine somewhat from that employed to handle all-wool goods.

First, a dyed sample of each color should be braided with samples of white wool, white cotton, and white rayon, and sewed in a cotton sack. The sack is attached to one of the pieces in a set that does not stain and given the regular treatment. Examination of the samples shows whether the color bleeds and a record should be kept for guidance. Hand washing is not a satisfactory test for fastness.

An excess of alkali in the fulling soap should be avoided. Overheating in fulling, high temperature in scouring, and unnecessary laying of the cloth in the wet state should also be guarded against. Some finishers prefer to scour before fulling and this helps to obviate trouble. The washing and rinsing should be complete and the cloth extracted and rushed to the fulling mills without delay.

In scouring after fulling, there should be sufficient warm water to loosen the soap and dirt thoroughly. The goods should not be run over 15 min., and then rinsed with warm water. At this point I would suggest a bath with 1% on the weight of the goods of a good sulphonated fatty alcohol. Boil the correct amount in a barrel and then allow to cool. Have the pieces well lifted and floating and add the solution. This method will insure a good and increasing lather. Run for about 15 min. and rinse with warm water, followed by cold.

Some finishers disagree as to the best method of napping this type of fabric. As cotton fibers are hard to raise in the wet state, I would suggest drying the goods first. This method gives a soft velour effect.

JAMES S. SARGENT

Ends Down

At a recent meeting of the Eastern Carolina Division of the S.T.A., A. B. Liles, overseer of spinning room No. 1, Rosemary Mfg. Co., Roanoke Rapids, N. C., reported the results of an ends-down test on spinning as follows:

Test 1

Yarn no.	14½s
Time	4 hr.
Spindles run (208 spindles per frame—5 frames)	1040

Hank roving	2.80
F. r. speed	146
Grade cotton	
Staple cotton	15/16 in.
Type of drive	Band
Draft	11.30
Traveler	6 S.P.
Ring size	1¼ in.
Spindle speed	8057 r.p.m.
Type roll covering	Front, cork; back and middle, leather.
Twist	Right hand
Width of frame	39 in.
Cylinder speed	1002
T.p.i.	17.11
Ratio of cylinder and spindle	7.6
Color yarn	Green

Causes for End Breakage	*over* 4-*hr. Period*	
Hard roving	1	.25
Ring holder up	2	.50
Spindle out of plumb	25	6.25
Roving slub	5	1.25
Single roving	2	.50
Flying lint	1	.25
Clearer waste	4	1.00
Bad roving	4	1.00
Bad bobbin	1	.25
Roving out on side	2	.50
Bad traveler	4	1.00
Slack band	1	.25
Separator blade bad	1	.25
Spindle wobbling	2	.50
Bad roller	1	.25
	56	14.00

14 ends down per hour on 1040 spindles.

Test II

Yarn no.	15⅛s warp
Time	6 hr.
Spindles run (208 spindles per frame—5 frames)	1040
Hank roving	2.80
F. r. speed	155
Grade cotton	
Staple cotton	15/16 in.
Type of drive	Band
Draft	11.64
Traveler	6 S.P.
Ring size	1¼ in.
Spindle speed	8561 r.p.m.
Type roll covering	Front roll, cork; back and middle, leather; bottom steel.
Twist	Left hand
Humidity	Dry-74-80-83-87 Wet-66-69-72-76
Width of frame	39 in.
Cylinder speed	1156
T.p.i.	17.75
Ratio of cylinder and spindle	7.6
Color yarn	Blue

Causes for End Breakage	*over* 6-*hr. Period*	
Bobbins flying up	9	1.50
Broken bolster	4	.66
Lumps in roving	22	3.66
Quill waste and flying lint	56	9.30
Cotton in travelers	6	1.00
Hard roving	5	.83
Tangled yarn	3	.50
Slack band	7	1.10
Bad rollers	12	2.00
Broken travelers	13	2.10
Unknown	20	3.30
	157	26.00

26 ends down per hour on 1040 spindles.

Questions and Answers

Jacquard Card-Punching

Technical Editor:

In making a woven label 1¼-in. wide, the number of ends is 200. The machine used for making these is a 400-hook narrow-fabric jacquard loom, having eight hooks in a short row. It is a 30-space machine, meaning that 30 labels are woven at once.

One operation of the Royle card-punching machine punches holes to operate eight ends on one pick; consequently with this design the card-punching machine must operate 25 times in order to produce one repeat of 200 ends. Since, however, this determines the operation of only 200 hooks, and since there is a total of 400 hooks, how would you punch the jacquards to take care of the remaining 200 hooks? Or, to put the question in another way, how would you complete the punching of the cards? (8334)

The question occurs to us: Why complete the punching of the cards at all, if the 200 perforations suffice to make the label?

However, it seems possible that there is something in your inquiry that you have not made quite clear to us. It is true that one operation of the Royle card cutting machine, of the type used in connection with the French-index jacquard head, punches holes to operate but eight ends; but it requires indication—that is, the punching, or omission to punch—of every one of the 200 ends in the design to produce a single complete pick.

In the ordinary 400-hook jacquard head of the French-index type, whether employed in the manufacture of narrow woven fabrics or for wide goods, there are normally 428 hooks. And in the cylinder which is presented to the needle-board, and over which the cards are drawn as the pattern progresses, there are the same number of holes; viz., 428. This total is comprised of 52 rows of eight holes each and, in addition, one row of six holes each at either end. The 428 holes may be said to be divided into two sections of 214 holes each, the separation being caused by a groove around the center of the length of the cylinder, the purpose of which is to permit space for the center lacing of the cards. Of course there are the same number of holes in the jacquard card. The upper illustration shows a 400-hook jacquard card with every hole punched.

The six hooks at either end of the jacquard head are usually reserved, in the manufacture of wide goods, for the operation of the selvage threads and are seldom, if ever, employed in the manufacture of narrow fabrics. In fact, they are seldom tied up; that is, they have no strings suspended from them.

Therefore, if your 400-hook jacquard head is strung up entire in the method usually employed for narrow fabrics, there is a string, a heddle, and a lingo for each of the remaining 416 hooks, and these are hung through a comber board.

The conventional comber board used in narrow fabrics may be either of two common types. One type has 16 holes per row (from front to back), and there are 26 rows. Each row of 16 holes might be considered as two rows, thus corresponding to both the hooks in the head and the rows of perforations in the card. Therefore, with this type of comber board the strings nearest the operator, when standing at the breast-beam of the loom, would be No. 1 in every odd row; that is, 1, 3, 5, 7, etc., when tied-in according to the New England method. If tied-in according to the Philadelphia method, the first string of the odd rows would be at the rear of the comber board. In the other type of comber board there are 52 rows of eight holes each, these rows corresponding identically to the rows in the jacquard head and in the card.

Now, if you are arranging your design properly, and are cutting your cards correctly, you are starting to cut, or punch (for a design requiring but 200 ends), on the first string of the 15th row, and of course you will finish on the last string of the 39th row, thus giving you 25 rows of eight holes each—twelve rows on one side of the center of the card and thirteen rows on the other side. The lower illustration of a 400-hook jacquard card shows how a 200-end design should be centered.

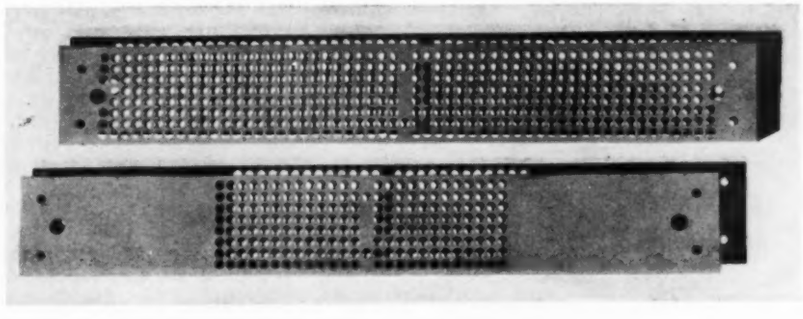
The purpose of starting with the fifteenth row is to center the design in the head, thus reducing unnecessary wear of the head by balancing the burden, and to facilitate the centering of the web in the reed. The purpose of starting with the first string in the row is to simplify the work of the operator of the loom, and assist the designer or loomfixer to check out errors in the punching of the cards, errors in drawing-in, improper operation of hooks, etc. The purpose of starting with the odd row, if a 16x26 comber board is employed, is also for the simplification of the work of the different operators.

Stockings Are Chafed

Technical Editor:

Inclosed you will find two pieces of stocking which are chafed. The dark brown piece of stocking, which seems to be worse in the welt, is made with the single carrier; the other piece of stocking, in which the chafing is more pronounced in the leg than in the welt, is made with the three-carrier. We should like to know if you are able to give us some information as to the cause of these chafe marks in our hose. Our dye method is of the one-bath type, and neither of the stockings was in the dye bath longer than 1½ hours. The silk in the welt is of 4-thread 20/22 denier, and the silk in the leg is 4-thread 13/15 denier. (8308)

An examination of the two pieces of stockings which are chafed—one in the welt



and the other in the boot—show two defects from entirely different causes. The welt is not chafed. The linty surface is loose cotton lint which rubbed off the dye net. This often happens when new nets are used for the first time. The reason this lint did not adhere to the boot was because of the high twist and hard finish of the boot.

The chafed condition in the boot of the second stocking is caused by chafed silk, either in the throwing of the silk or in the knitting. This chafing can be caused by a cut or cracked porcelain eye on the winder, from a cut or broken carrier tube on the knitting machine, or from a cut porcelain eye in the tension on the knitting machine.

It is possible to get chafing in the dyeing operation, but this usually runs in spots and is on the outside surface of the stocking. In this sample the chafing is clearly in the silk thread itself.

Bobbins for Mohair

Technical Editor:

There is a problem confronting us on the adoption of paper tubes for our spinning department, replacing the wooden ones now being used; and we wonder if you could inform us on the subject. We use the Bradford system of spinning on ring and cap frames. Twisting is done on Collins and Prince Smith frames, vertical rings. We know there are numerous companies using paper tubes; but they are on woolens or worsteds and use the short draft.

The definite point we would like to know is: Can this type of tube be adopted for the Bradford system, using mohair and mohair mixtures? (8326)

When tubes are used, it is necessary to form a cone at each end. The filling wind is usually employed, and this first forms the bottom cone and naturally finishes off with the cone at the top. The angle of the cone is such that considerable frictional resistance is required between the adjacent layers of yarn in order that a firm package can be made which will not "slatter" at the bottom or "slough off" at the top. Both these evils will cause much waste.

In a number of mills experiments have shown that a wooden bobbin provided with the usual base and a very small head, used with a warp wind which leaves a cone at the top, can be employed very satisfactorily for mohair.

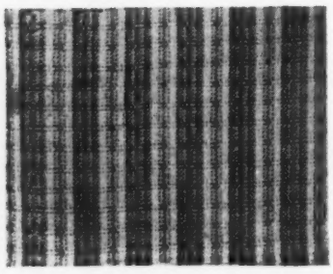
A special arrangement for driving the motion screw of the Scaife motion is available. This is designed to give a reciprocating movement to the rack. The movement is slow and its extent is adjustable. This wind was developed especially for mohair yarns, and it has proved a success. A large cam is employed.

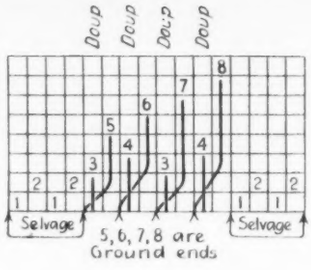
A Leno Dispute

Technical Editor:

As a steady reader of TEXTILE WORLD, I am submitting to you herewith a sample of cloth for your decision as to the number of harnesses used to make it. The sample shows 52 leno sets per inch on the cloth, which would make 46 in the loom. *A* states that he can make the cloth, including selvage, with six harnesses and doup. *B* states that six harnesses and two doups, including selvage, are necessary. (8320)

We find the count to be 106x76 in the finished cloth. The count would be around





100x76 unfinished. Theoretically, *A* is correct. Each doup group works on the same movement of the dobby lever. A lack of knowledge of the requirements of practical weaving would lead one to believe the cloth could be woven with one doup set; but this would be impossible in actual practice, because every other end requires one doup. This would call for 50 doups per inch, far too many to crowd into 1 in. on a harness frame. As a matter of fact, 50 ordinary heddles per inch could not be used and make weaving possible. By using two doup sets, with the modern flat steel doup, one could weave this pattern, but would not find it any too easy.

We would lay out this cloth with two doup sets and four ground harnesses. In the accompanying sketch, Nos. 3 and 4 are the doups; 5, 6, 7, and 8 are the ground ends. With this set-up, the cloth could be woven with little trouble. Selvages would be woven on 1 and 2 harnesses.

Redyeing Wool Crepe

Technical Editor:

We are inclosing a piece of 36-in. wool crepe which were redyed from a green shade. You will notice that there are dark spots in this material. This piece was dyed in the same dye box with other colors into this shade, and the other colors dyed up satisfactorily. Can you advise us if there were some foreign substances in the material or in the process that caused these spots and if there is anything that can be done to eliminate them. We washed the fabric in soap, but without any result. (8316)

As the original color has been stripped and the goods redyed, it is almost impossible to trace the cause of the unevenness at this stage. There may have been iron stains on the goods, or perhaps some resists due to lime salts and soaps. The majority of greens, violets, and blues do not strip as the azo dyes do, but are reduced and partly stripped and later when exposed to the air, much of the color comes back. Even when the color does not come back entirely, there are some byproducts formed by the air oxidation, which might act either as resists or mordants and cause uneven dyeing. All these are mere suppositions, as the real cause of the trouble is now absent from the goods and there is no way of establishing any fact definitely.

To strip and redye these fabrics we suggest trying a stripper of the zinc-formaldehyde-sulphoxylate type. Do not redye with direct dyes, but use neutral-dyeing acid dyes.

Gelatin Sizes

Technical Editor:

In the Questions & Answers Section of your January issue, you answered some questions on sizing acetate yarn. In your answer you mentioned that 160 to 165° F. is not a good temperature at which to apply a gelatin size.

As I am very much interested in use of gelatin size on acetate and rayon, I am anxious to learn why you think these temperatures are not desirable. Would you be kind enough to explain and if possible refer me to some literature on the subject. (8338)

We do not know of any published information which explains why gelatin sizes should not be applied at temperatures of 160 to 165° F. The experience of mill men has been that gelatin sizes should be applied to acetate yarn at the lowest possible temperature which can be used to obtain the correct degree of penetration or absorption of the size. It is the general opinion of users that sustained temperatures in excess of 165° F. have a tendency to break down the neutral gelatin used for this purpose.

Wrinkles in Hosiery

Technical Editor:

Inclosed herewith you will find a stocking, which we should like you to examine to determine the cause of the wrinkled effect. We have noticed this defect only after we received the hosiery from the dyer. (8313)

Upon examining this stocking, we first got the impression that the stocking had been finished with a gum finish and allowed to dry in a wrinkled condition before boarding. However, after the stocking had been wet out and reboarded it showed no improvement. A good hot rinse followed by reboarding did not help, nor did stripping and redyeing.

We believe, therefore, that the stocking was improperly degummed to begin with and that the fabric was not prepared for the dyeing and finishing operations. To correct the trouble it will be necessary to degum the goods thoroughly, strip, redye, and refinish. When this is done, the goods will show the effect of too much processing and will not make first-class merchandise. Probably the best solution is to classify such goods as seconds and dispose of them as such.

Removing Oil Spots From Knit Goods

Technical Editor:

I am inclosing three swatches of fabric made from a 30% cotton and wool mixture and showing a severe oil spot on each piece. These spots came on the fabric in an American Laundry machine, overhead electric motor, driving centrifugal extractor, and appear to me to have carried out some of the bronze from the bushing, with the oil. Will you please advise me if there is a satisfactory

formula or solution for removing these spots without damage to the material. (8314)

Of the various methods attempted in an effort to eliminate the spot, the following gives the most complete removal and had the least effect on the fabric. It consists of several steps. The first step is to rub oleic acid thoroughly into the spot; this treatment is followed by saponifying the oleic acid by putting a few drops of triethanolamine on the spot and thoroughly rubbing it in. Next the spot is treated with a few drops of hexalin and then washed out with pure water. This will remove the grease and oily substance from the spot, but will leave a metallic stain. The fabric is then treated in a 5% solution of hydrochloric acid at 150° F. to remove this metallic stain. After this treatment, there is a slight indication of the stain; but, of course, it is nowhere near as conspicuous as it was originally. Other methods of treatment injured the wool portion of the fabric; that is, caused it to felt and shrink unduly.

CORRESPONDENCE

Knot Kinks

I just noticed an inquiry published in your April issue on the subject of knot kinks in georgette. I am a wool man and am not certain just what a georgette is, but I am positive that knot kinks can be prevented only by early shedding. In other words, the shed must be as early as possible without interfering with the movement of the boxes. The harness cylinders must be at least six teeth ahead of the box cylinders, and the bottom cylinder must not be later than the top cylinder. If the two cylinders cannot be exactly in time with each other, the bottom cylinder is the one which should be ahead, for the simple reason that the cam which governs the lock knife is on the end of the bottom cylinder. With the bottom cylinder early, the lock knife will be allowed to go in between the vibrator points early, so that the harness cylinders can be set early without their being put ahead of the lock knife. Many times I find it necessary to cut out a tooth—or rather, one-half a tooth—of the bevel gear on the upright shaft in order to accomplish what I have described.

I have never contributed to your Questions & Answers Department before, but I know what it means to be troubled by knot kinks. Of course, double reeds would be a great help, but nothing gives such satisfactory results as early shedding. On heavy C. & K. looms, we can have the shed closed when the reed is about 3 in. from the cloth.

The method I have described for placing the fast motion on the start of the movement of the harnesses will give the early shed and will prevent knot kinks on every type of cloth with which I have ever come in contact. BENJAMIN F. HAYES

Overseers' Outing

Blessed with perfect weather, 600 members and guests of the National Association of Woolen and Worsted Overseers gathered at Rocky Point, R. I., on May 16, for the 53rd annual outing. At the business meeting in the morning the following were nominated for officers and will be voted upon next November. Herbert E. Fulton, president; Clarence L. Cutler; vice-president; Bernard J. O'Reilly, second vice - president; James J. Burns, secretary; Leslie Gill, secretary of beneficiary department; Thomas Clarkin, treasurer. As usual, the only office in which there is a contest will be for the position of third vice-president, for which Frederick Graichen, Walter Kelley, George Swallow, Joseph MacCannon, and Eugene Conners were nominated.

Personal News

Chas. A. Brooks, overseer of spinning at Georgia-Kincaid Mills, No. 3, Griffin, Ga., has been transferred to a similar position at the No. 2 Mills. **J. R. Jinks** of Mill No. 2 has been transferred to overseer of spinning at No. 3.

C. H. Barton, production manager of Slater (S. C.) Mfg. Co., has been transferred to the company's plant at Slater, Mass., where he has been made assistant superintendent.

J. O. (Zero) Lindsay, mechanical engineer, Pacific Mills, Lyman, S. C., recently shot a hole-in-one at the Shoresbrook golf club, 195 yd. Previously he shot a hole-in-one on the same course, 215 yd.

Thomas H. Hildreth, for the last 15 years with Bibb Mfg. Co., Columbus, Ga., is now with Cannon Mills Co., Kannapolis, N. C. He has a position there in the weave room.

V. P. Thompson, of Manchester, Ga., has been made superintendent of Rushton Mills, Griffin, Ga., succeeding C. J. Ashmore, resigned.

J. B. Walker, former overseer weaving second shift, Griffin (Ga.) Mills, is now overseer No. 1 weave shed at Brookside Mills, Knoxville, Tenn., succeeding **Dick Gearry,** resigned.

J. O. Blankenship has resigned as card grinder, Rushton Cotton Mills, Griffin, Ga., succeeded by Claude Huckaby.

John McGuffey has resigned as master mechanic at Georgia-Kincaid Mills, Griffin, Ga.

F. T. Roberts, formerly with Watts Mills, Laurens, S. C., has been made production manger of Slater (S. C.) Mfg. Co., succeeding **C. H. Barton** who has been transferred to Slater, Mass.

James Cobb, formerly of Lancaster, S. C., has become assistant superintendent of Opelika (Ala.) Cotton Mill.

James W. Stanley, former superintendent of Robinson Mfg. Co., Oxford, Me., is now assistant superintendent at Merrimac Woolen Co., Lowell, Mass.

Samuel Boyd has resigned his position as overseer of spinning and warping at Wauregan-Quinebaug Co., Danielson, Conn., to join Lockwood Mills, Waterville, Me.

Thomas Fleming, Jr., is now overseer of dyeing at Atlas Waste Co., Glendale, N. Y.

John H. Pickles has succeeded Chester Matthews as overseer of dyeing at Katahdin Woolen Mills, Inc., Corinna, Me.

J. E. Wilding has been made overseer of bleaching at Narragansett Finishing Co., Westerly, R. I.

Harold P. Southerland, who has been

KEY MEN AT FOUNTAIN INN PLANT

Left to right front row, R. T. Stutts, superintendent, H. B. Bennett, R. D. Ballew; back row, W. O. Bouchillon, J. R. Roberts, L. C. McCall—at Woodside Cotton Mills, Fountain Inn, S. C.

SNAPPED AT SPARTANBURG

AT THE LEFT is C. D. Huff, overseer spinning, Woodside Cotton Mills Co., Simpsonville, S. C. He is another old-timer in the industry, having spent 30 years in the mill. Most of his service has been at Simpsonville, although he has worked at Chesnee, S. C., and Gastonia, N. C. During Mr. Huff's earlier days, the travel-bug bit him, and he worked for a time as flagman on a railroad, but soon returned to the mill business. He likes baseball and has served as manager of the Simpsonville team. J. H. Huff, superintendent of Camperdown Mills, Greenville, S. C., is his brother.

THE OTHER GENTLEMAN is W. T. Morton, overseer spinning, American Spinning Co., Greenville, S. C. Mr. Morton entered the mill at the age of eight and has worked 36 years, the last three being with American Spinning Co. His hobbies are fishing and baseball, and he is interested in church and community work. He teaches a men's Bible class.

KEY MEN AT SLATER (S.C.) MFG. CO.

Left to right, front row, J. C. Clark, overseer cloth room, J. M. Bailey, superintendent; back row, F. W. Keasler, overseer weaving and slashing, J. R. Wood, overseer rayon winding and warping. J. L. Starns, the master mechanic, was absent when the picture was made.

general overseer of the throwing department of Adams-Millis Corp., High Point, N. C., will be manager of a new throwing plant, the Joy Silk Mills, Hartsville, S. C. **F. C. Gilbert,** Hartsville, will be associated with Mr. Southerland.

William E. Baker has become overseer of weaving, Woodside Cotton Mills, Fountain Inn, S. C. He formerly held a similar position with Gayle unit of the Springs Cotton Mills, Chester, S. C.

Hugh Coleman has been appointed master mechanic in the engineering department of Hartsville (S. C.)Mfg. Co.

R. M. Suttle, formerly overseer of the mechanical department of Irene Mills, Gaffney, S. C., and his son, **T. R. Suttle,** have opened a cotton recleaning plant. They purchased some of their machinery from the Irene Mills.

M. R. Casey has become overseer of weaving at Conestee (S. C.) Mills, having resigned as warp and section man at Victor plant of Victor-Monaghan Co., Greer, S. C.

Adam Rittlinger, overseer of carding at Broad Brook (Conn.) Co., has resigned after 30 years of service with the concern.

Carl Shilze has been promoted to the position of head designer at American Woolen Co., Shawsheen Village, Mass. **Cyril Piper** has been made first assistant designer.

Robert Rogers is now with Drayton Mills, Spartanburg, S. C.

J. N. Ard, of Mobile, Ala., is now night overseer of weaving at Imperial Cotton Mill, Eatonton, Ga.

K. C. Scarboro, of LaFayette, Ala., is now overseer weaving, Imperial Cotton Mill, Eatonton, Ga.

John Brasch, of Grantville, Ga., is now efficiency man at Tifton (Ga.) Cotton Mills.

Robert Sullivan has been promoted to second hand of carding at Tifton (Ga.) Cotton Mills.

J. B. Webb has been promoted to second hand of spinning and twisting at Tifton (Ga.) Cotton Mills.

C. M. Hill has been promoted from second hand to overseer spinning and twisting, Tifton (Ga.) Cotton Mills.

J. M. Gazaway has been promoted from section spinning to overseer carding at Imperial Cotton Mill, Eatonton, Ga.

Ernest Holt has resigned his position at Bamberg, S. C., to become overseer carding at Atlantic Cotton Mills, Macon, Ga., succeeding **A. N. McAbee,** resigned.

Render Jimison, overseer spinning, Rushton Cotton Mills, Griffin, Ga., has also been put in charge of carding.

George Watts, of Lockwood Co., Waterville, Me., was elected president of Central Maine Textile Association at the annual meeting. Other officers are: first vice-president, **Clyde Beaton,** Edwards Mfg. Co.; second vice-president, **Irving J. Coville,** American Woolen Co.; third vice-president, **Arthur Weymouth,** Lockwood Co.; treasurer, **Alfred Harper,** Edwards Mfg. Co.; secretary, **Stanley Stevens,** Lockwood Co.

J. R. Federline, Jr., general overseer of spinning, spooling and warping at Beaumont Mfg. Co., Spartanburg, S. C., has resigned in order to return to his old job as general overseer of spinning, spooling and warping at Lanett (Ala.) Mill, of West Point Mfg. Co.

Dick Gearry, overseer of weaving, Brookside Mills, Knoxville, Tenn., recently resigned.

Roy Furr, an overseer at Ridgeview Hosiery Mills, Newton, N. C., led the ticket in the municipal election there for the board of aldermen.

Albert E. Webster has been named overseer of the finishing department, American Thread Co., Holyoke, Mass., succeeding **Walter J. Britton,** who has retired.

First Technical Meeting

Of Tennessee S.T.A. Division discusses both spinning and weaving

THE newly organized Tennessee Division of the Southern Textile Association held its first regular technical discussion in the Y.M.C.A. Building, Knoxville, Tenn., on May 16. This group was formed March 28, with B. W. Bingham, overseer of carding, Brookside Mills, Knoxville, as chairman. Temporary officers appointed at that time were elected to serve for one year. L. T. Neal, of Borden Mills, Inc., Kingsport, and T. P. Taylor, of Standard-Coosa-Thatcher Co., Chattanooga, were added to the executive committee. Carding, spinning and weaving problems were discussed, with Chairman Bingham presiding over the round-table meeting.

Picking and Carding

The first question deals with speeds for two-bladed beaters and the number of blows per inch which should be employed in preparing cotton for carding. T. P. Taylor, overseer of carding, Standard-Coosa-Thatcher Co., said that, while he has no two-bladed beaters, he thinks such a beater should be operated at 1,000 to 1,100 r.p.m. About 20 beats per inch on $1\frac{1}{4}$-in. cotton is satisfactory where the beater is in the back. If there

is a beater in front, 30 to 35 beats are correct, he said, depending of course on the character of the cotton and production desired. Chairman Bingham said that he would not let the finisher hit 1¼-in. cotton more than 20 blows anywhere, adding that he lowered his blows on 15/23-in. cotton from 20 and 26 to 18 and 20 on breaker and finisher, respectively, and thereby increased his breaking strength 15%.

With reference to proper doffer speeds for good carding on 1 in. cotton, Mr. Taylor thinks that 6 r.p.m. is correct. Consensus was that cards operating on 1¼-in. Pima cotton should be stripped about every two hours.

Concerning proper drafts on cards, George W. Williams, overseer of carding, Cherokee Spinning Co., said that he does not believe 125 should be exceeded. Several members preferred figures nearer 100.

Slower than standard lickerin speeds were preferred by some, despite less efficient cleaning. It was asserted that slower speeds increase breaking strength.

Light grinding of cards relatively often was unanimously preferred as against heavy grinding less often. It was agreed that cards should be "slicked up" every six to eight days for best results. Heavy grinding was said to affect the temper of the wire.

Spinning

Andrew Whaley, overseer of spinning, Cherokee Spinning Co., said that a good record for ends down per thousand spindles on 40s warp and filling is about 75, with a roller speed of 103 r.p.m., a spindle speed of 9,320 r.p.m., and a cylinder speed of 1,165 r.p.m.

Chairman Bingham said that he gets better results by pulling down ends to piece-in roving.

Consensus was that the commercial overhead cleaning systems are better than brushing and blowing-down schedules. E. J. Ashe, vice-president and general manager, Standard Knitting Mills, Knoxville, reported that an overhead traveling cleaner in his mill saves the operator so much time that average production capacity has been increased 10%. He also mentioned a vacuum cleaning system which he thinks might be of some value in cleaning ceilings and pipes. Chairman Bingham and Mr. Whaley reported that they clean once a week, over the week end, but are not particularly enthusiastic about the system.

Weaving

As to the best setting on Draper looms to get a good cover on 128x60s broadcloth, F. A. Keough, overseer of spinning, Cherokee Spinning Co., suggested raising the stop motion, whip roll, and breast beam. The harnesses are set low to the breast beam, and the reeding is arranged to give two tight threads on the outside of a dent and two loose threads in the middle. Mr. Veynar mentioned that experiments at King Philip Mills, Fall River, Mass., show that drawing in four, one, two, three in the dent is much better than one, two, three, four, as the former arrangement gives two loose threads in the middle of a dent and two tight threads on the outside. This same mill uses a split cam instead of the regular Draper cam. In answer to a question, Mr. Keough said that he raised his take-up roll about ½ in. and the stop motion about 1 in.

Cast-iron eyes in shuttles were said to be better than brass eyes.

Address by Mr. Ashe

R. J. Ashe presented a brief address on "Foremanship and Its Relationship to the Employees." "The term foreman means leader," said Mr. Ashe, "and for a man to be a leader, he must have certain qualifications. The technical side is very important, but I think the technical side is not the most important." A good foreman must have human understanding, fearlessness, loyalty, and thoroughness, as well as technical experience, he declared, explaining that a man might be a technical genius and indispensable to the company—yet a good foreman can always hire a genius. He urged the foremen to give the men under them the benefit of their experience so that when the time comes for a foreman to move up, there will be some one competent to take his place.

THE INAUGURAL MEETING of the Tennessee Division of the Southern Textile Association discussed speeds for two - bladed beaters; card speeds, drafts, and grinding; spinning-room ends down and cleaning; and loom settings for broadcloth.

Burlington Loomfixers Meet

Loomfixers of the jacquard weave room of Plant No. 1, Burlington (N. C.) Mills, Inc., gathered for supper and a round-table discussion on May 8. Those present were: C. E. Ketner, overseer of weaving; C. A. Boggs, night overseer of weaving; J. P. Gant, third-shift overseer of weaving; T. C. White, designing office; J. M. Gayle, Jr., day second hand; H. A. Schoolfield, R. W. Becknell, H. L. Ketner, T. C. Ketner, B. Y. Younts, G. A. Yarborough, and B. F. Rook, fixers. Mr. Schoolfield acted as chairman and after the general discussion C. E. Ketner gave a talk on the advantages and disadvantages of a man changing jobs periodically in order to gain experience.

Master Mechanics

Discuss maintenance and other matters at Greensboro meeting

THREE technical papers and a discussion of engineering problems featured the spring meeting of the Master Mechanics Division of the Southern Textile Association, May 8, in the auditorium of the White Oak Mill Y.M.C.A., Greensboro, N. C. L. M. Kinkaid, plant engineer, National Weaving Co., Lowell, N. C., chairman of the group, presided over the program.

Speaking of the benefits a mill derives from employing a "good" master mechanic, Robert Jackson of National Weaving Co., Lowell, said that a master mechanic who is interested in his job will not wait for the superintendent to call his attention to equipment in the need of repairs. Instead, he will keep on the lookout for places where he can rearrange or alter certain machines and equipment in order to reduce manufacturing costs.

Improvements at National

A few of the improvements made at National Weaving Co. by the technical and supervisory staff during the last few years were as follows:

A small catch basin was constructed in the storm-sewer line and a pump installed in order to supplement the water in the fire reservoir. The first time it rained, water from 120,000 sq.ft. of roof filled the fire reservoir, and, incidentally, satisfied the insurance company, which had been complaining about shortage of water.

A small feeder tank was installed inside a monitor and a steam line run into it in order to heat humidifier water during the winter and subsequently raise the weave-room temperature, which had been too low.

Electric meters were put in each village house and each residence allotted 30 kw. monthly. This was to protect the residences on the end of the line, which were getting insufficient power due to extravagance of their neighbors. The meters paid for themselves in three months, and each house in the village now receives plenty of current.

A brace was designed for 50 44-in. jacquard-loom crankshafts, which had been breaking at the rate of one every two weeks. This brace cut the breakage almost 100%. Solid driving rods

to the head, which were overworking the motor, were replaced with a set of rods from steel tubing. These rods, weighing 13 lb. per set of three, reduced the motor load 15%.

Electrical Maintenance

The next address was by Henry McKelvie, vice president and general manager of Firestone Cotton Mills, Inc., Gastonia, N. C., who spoke on electrical maintenance. "There are two problems," he explained, "one of them in the plant where the equipment is new and modern; the other in a plant where it is old. Since the power plant has been discussed at length in previous meetings, I am going to omit that from this phase of our work. Let us consider the power coming into your main switchboard—it matters not whether it comes from your own generators or transformers, or the transformers of the power company."

Mr. McKelvie's address in part follows:

"Are your transformers carrying the proper load? Overloaded transformers will seriously affect the regulation curve and cause excessive voltage drop between no load and the overload. When large transformers are in use, the matter of drop between no load and full load is serious, even under normal conditions. When an excessive regulation drop is coupled with an excessive voltage drop due to overloaded bus bars, then we have a condition which may become serious. Are your wires and bus bars coming from the main transformers or power house heavy enough properly to carry the load?

"Excessive voltage drop between transformers and switchboard can usually be corrected by regulating the transformer and installing proper-weight bus bars. A proper regulation curve on transformers and adequate copper between the transformers and switchboard ordinarily will take care of increased voltage when power comes on after temporarily being off.

"The circuit switch, which acts as a disconnector between the load side and the line side, must be installed right and maintained correctly. Contacts must be kept in alignment, there must be proper spring pressure on the sides, and the nuts and studs have to be tight. Otherwise, there are many possibilities of heating. The overload relay must be in good condition or there is danger of throwing a short circuit back on the power company and burning out equipment. Human life is endangered.

"The best and most economical conductor in use today seems to be silver plating over copper. Silver contacts tend to minimize oxidation. If the switch cannot be operated several times a day, the best possible contacts should be used in order to keep down oxidation and subsequent heating.

"Power is easily handled up to the switchboard because you are dealing with large wires, switches, etc. After it passes the switchboard, each problem must be analyzed separately. You must know where the circuits go and be careful not to overload any switch. Sometimes one phase is overloaded more than the others because of lighting circuits, single-phase motors, transformers, branching off, etc. Simple inexpensive instruments will go a long way toward solving such problems. A split-type ammeter, a voltmeter, and a power analyzer would be adequate in most textile plants.

"Nothing replaces a well-spliced, good, soldered joint. When you have an electrician making a splice, do not be afraid to get up on the ladder and check him.

Next the Motor

"After the circuits are checked, the next item is the motor. The ideal method is to install the motor on the floor using the latest combination switch rather than the old-type fuse box and switch. Motors and switches on the floor make it easier on the electrician and give him more time for inspections. It is not necessary to say that your contacts and wire connections should be tight. I am a great believer in the spring-type or lock washer, which costs a little more but will save you money in the end.

"Your electricians should have access to circuit testers and a voltmeter for their protection. This, to me, is one of the most important parts of electrical maintenance—to see that your men are protected and that you have equipment to protect them with.

"Badly worn motor shafts and outboard bearings use excessive oil and cause trouble. In one case, the oilers were instructed to keep an accurate list of the bearings which required an undue amount of oil. This report was studied, and by replacing worn shafts and bearings our trouble was eliminated. We not only saved oil but prevented machine stoppage.

"All of us have had the problem of motor burn-outs. The magnetic switch has solved this problem more than any other development by reducing the possibility of single-phasing. We still have the problem of three-phase fractional horsepower motors with us. No magnetic, thermally protected switch has been made to sell at a reasonable price to cover fractional horsepower motors such as are used on our humidifier heads. We can buy standard switches for $6 to $8 each, almost the price of rewinding. I cannot see why we do not have a switch more in line with the less expensive household switches. For the larger motors, we have the solution in the magnetic switch with its thermal relays.

Village Maintenance

"The Master Mechanic's Relation to a Cotton Mill Village and Village Maintenance," was the title of the third paper. In the absence of the author, Ira Harris, maintenance engineer, United Spinners, Inc., and Peerless Spinning Co., Lowell, N. C., the paper was read by F. W. Lowe, master mechanic, Ruby Cotton Mills, Gastonia, N. C.

Mr. Harris stressed the fact that a master mechanic should be more than a technical supervisor. He should take an active part in village and community life and should be selected by the management for his ability as a leader as well as for his ability as a technician.

With reference to the part played by the master mechanic in village maintenance, Mr. Harris said that he should always be on the lookout for dangerous steps, weak floors, and defective wiring. A leaky roof increases the fire hazard, particularly if the leak is near electric wiring. A concrete base under the first step of outside stairways will more than pay for itself. Balustrades should be simply but substantially constructed, with as few places as possible for water to catch and remain. The bottom rail is the first to decay and should always be of treated wood.

Painting involves many considerations and generally is the largest item of upkeep cost. As to how often a house should be painted, this depends on many factors, such as the thickness of the plank, the moisture, exposure, etc. Generally speaking, when the paint begins to crack and peel off, it has about spent its usefulness.

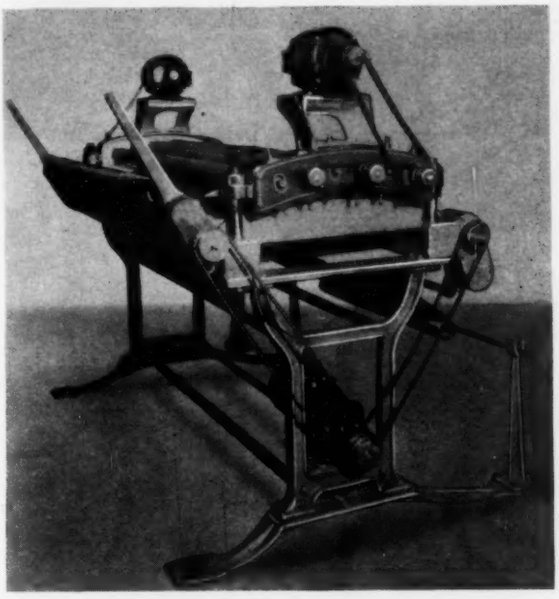
Discussions

Following Mr. Jackson's paper there was a general discussion of humidifiers, water treatment, and filtration. Following Mr. McKelvie's paper, there was a general discussion of electrical problems, calender-roll finishing, pumps, and corrosion in water lines. Following Mr. Harris' paper, there was a general discussion of machine shops, gear cutting, electric welding, and filtration plants.

Hill Hunter, general manager and secretary of Proximity Mfg. Co., Greensboro, N. C., invited the master mechanics and visitors to inspect the power plant which serves the Cone mills in Greensboro.

PREPARED PAPERS presented at the Master Mechanics' meeting discussed recent improvements at National Weaving Co., the maintenance of electrical equipment, and the maintenance of mill villages. All were of high merit and are summarized in this report.

NEW MACHINERY & PROCESSES



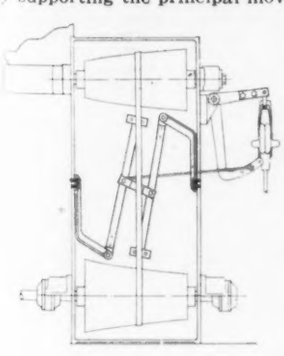
Sueding Machine

Nap or pile can be produced on fabrics woven or knitted of continuous-filament rayon or silk with the Seide Sueding Machine introduced by R. L. Sjostrom & Co., 10 Post Office Sq., Boston. The suede effect may be had full width or in any width of stripe lengthwise, and wool, cotton, or linen can, of course, also be handled. In the machine, the fabric is held on a spongy, clinging pneumatic bed, which holds it in both length and width. As the fabric moves forward under the abrasive rollers, the surface filaments are cut to about 10% (the amount is adjustable) of the thickness of the cloth, thus producing fibers to form the nap. The goods are then rolled. A wide variety of new effects is said to be possible.

Other features of the machine include high-speed rollers adjustable individually and as a series, cloth passed between cutting rolls and pneumatic bed with pressure instantly adjustable, small floor space required, low power consumption, and skilled help not needed.

Evener Belt Shipper

Saco-Lowell Shops, 147 Milk St., Boston, have developed an improved evener belt shipper that may be used to replace the old type on pickers using the F-7 evener. The new shipper is constructed of steel, weighs 3 lb. as against 8 lb. for the old, and inertia due to dead weight is practically eliminated by supporting the principal moving parts on roller bearings. Moving members are joined where required by hardened and ground steel studs to minimize lost motion. The new construction is designed to make the evener quick in action, so that the feed rolls respond almost instantaneously to slight variations in the mass of cotton passing through the evener rolls at any time. The improved shipper has been adapted as standard equipment on future deliveries of F-7 Eveners.



Carton Sealer

Stapling of the flaps of any corrugated or fiber container of the overlapped type is possible with the Paslode Carton Sealer introduced by Paslode Co., 219-C North Bank Drive, Chicago. No glue is necessary, and it is stated that sealing is speeded and damage in transit reduced. The device has an S-angle construction, which permits it to slide along the overlapped flap and drive the staples from end to end in one operation.

Portable Cable Accessories

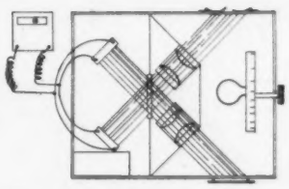
To meet the demand for satisfactory methods of connecting and terminating portable cable, General Electric Co., Schenectady, N. Y., has announced a line of accessories which includes high-voltage cable couplers and moulded terminals for all voltages.

Latex Pail

Dewey & Almy Chemical Co., Cambridge B, Mass., has developed the Dartex latex rubber pail for handling acids, bleaches, and other corrosive chemicals. The pail is cast from liquid latex; heavy rubber prevents appreciable bulging, dents and chips are avoided, the front is reinforced, so that it is possible to rest it on the edge of a tank when pouring. The spout is designed to enable the user to control the size of stream poured, and the stainless-steel bail is removable to save replacement costs. Tests conducted in the laboratories of the company show the pail is resistant to such chemicals as glacial acetic acid, hydrochloric acid, 50° sulphuric acid, caustic soda, 17% bleaching solutions, formaldehyde, etc.

Photo-Electric Reflectometer

Reflectance, opacity, and color of paints, pigments, and textiles can be measured by the photo-electric reflectometer placed on the market by Henry A. Gardner Laboratory, Inc., 2201 New York Ave., N.W., Washington, D. C. The new reflectometer is a photo-electric adaptation of the Hunter Visual Reflectometer described in TEXTILE WORLD, June, 1934. The photo-electric instrument measures the same quantities, employs the same large sample areas, and operates faster and with greater precision than the visual instrument. The test surface and a comparison surface are at opposite ends of a light tunnel, and are illuminated by a single lamp that is movable between them. Two rectifier-type photo-electric cells are placed so that each receives light reflected at an average of 45° from one of the surfaces. The two cells are connected in series and a galvanometer is connected across them to indicate when one cell generates a current greater than the other. The reflectance scale moves with the lamp past a stationary indicator.



To determine reflectances, a standard is first placed in the test end of the instrument, and the lamp is moved to a position for which the scale reading gives the reflectance value of the standard. By means of a compensating shutter, the light falling on one or the other of the cells is then reduced until the galvanometer reads zero. When the instrument has been adjusted, unknown surfaces may be substituted for the standard and measured directly. To obtain color values, reflectances in colored light are determined.

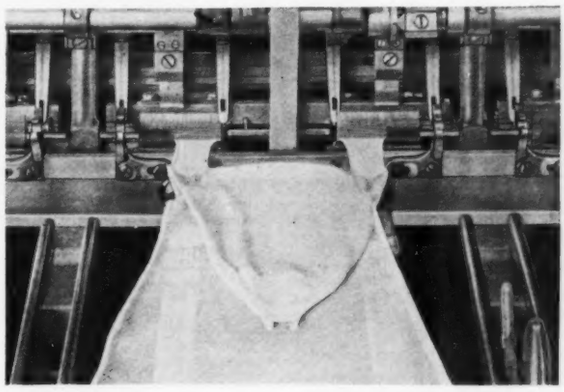
Continuous Knitting from Welt to Toe

Elimination of differences in shade between the leg and foot of full-fashioned hosiery and also the elimination of topping lines at the instep are attained by a new combination of legger and footer now being demonstrated by Robert Reiner, Inc., at its Weehawken, N. J., plant. The combination machine is known as the "Combi" and is an Einsiedel-Reiner product. Although knitting is continuous from the welt to the toe of the stocking, the heel tabs are knitted on a separate machine, which is known as the heeler.

The legger knits the stocking in an orthodox manner to the place where the knitting of the heel tabs would normally begin. At this point the splicing carriers are dropped out automatically and two courses of ordinary instep yarn are knitted. These are called the cutting courses, as they must later be severed to separate the high splice from the sole. After the cutting courses are made, the knitting of the foot begins and is carried through the toe as on an ordinary footer. The blank as it comes off the legger has no heel tabs and the high heel is continuous with the sole.

The blanks, by a new simplified system, are then topped on the heeler needle bar, which has two groups of needles for knitting only the heel tabs, as may be seen in the accompanying photograph. Knitting of the heel tabs is conducted in the normal fashion, the machine, however, automatically racking back to starting position and pressing off the fabric under the control of a chain button.

The looper severs the cutting courses and loops the heel tabs to the sole. The stocking is then



finished in the usual manner.

Since the method of knitting just described makes the width of the stocking blank at the high heel the same as at the start of the foot, the machine is equipped to allow a modification in the method for those mills which choose to duplicate the present dimensions of full-fashioned hosiery exactly. This modification consists of widening out the fabric in one course some 20 or 25 courses before the gore line is reached. As a result, the start of the foot may be, say, ½ in. wider than the high heel, which is the common difference of width in present stockings. This means, however, that the block of widened fabric above the cutting line must be cut off, adding some 6c. per dozen to the cost of manufacture. The widened fabric is drawn from the needles by hooked knock-overs.

This change in width can also be accomplished by a gradual widening out of the high heel one needle at a time, a procedure made possible by the use of high dividers. This method, while it does not duplicate normal stockings, is said to afford a better-fitting stocking than the present standard type.

The Combi legger is reported to operate at from 75 to 80 courses per minute and in 42 gage to produce 12 doz. pairs of stockings per 8 hr. Provision for narrowing the toe is about the only addition to the mechanism of an ordinary legger that the Combi principle requires, although the footer narrowing fingers are too wide to permit the application of the principle to existing machines. Provision has been made for putting in the splicing carriers automatically.

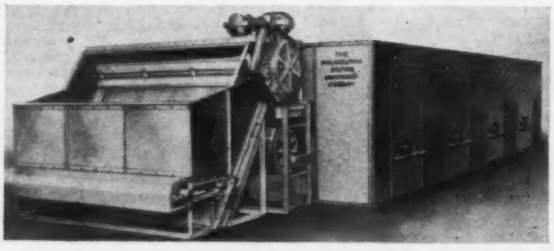
Since only 3 min. is required to knit a set of heels, one six-section heeler will handle 40 doz. pairs of stockings per 8-hr. day and take care of three to four 24-section leggers. The heeler, being largely automatic, can be operated by girls; and two topping girls can supply one heeler girl. Three carriers are available for each heel, permitting plated heels, heels within heels, etc. The cam movement can be adjusted for the production of exceptionally heavy heels on light-weight stockings. The reinforcing at the heel is made three or four needles wider than the cutting line, and strain at the heel corner comes on some six wales or courses, affording strength.

The cost of manufacturing hosiery on the Combi system is reported to be about the same as on the regular legger-and-footer system.

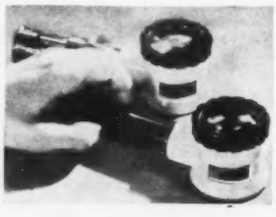
Electric Cloth Guider

Motor-operated electric cloth guiders have been announced by H. W. Butterworth & Sons Co., 2417 East York Ave., Philadelphia. The motors have no brushes or armature windings, are fully inclosed, and will stand in stalled position for at least 30 hr. with the full current on without burning out.

The contact switch operates



in a vacuum to keep the points clean, requires 30 grams to operate, and tests made by the manufacturer indicate that it is good for 100,000,000 operations. The make-and-break mechanism requires a movement of less than 0.02 in. The brass-and-rubber-roller principle used by the company in its air-operated guiders is employed, with the added features that the pressure between the rolls can be adjusted instantly and the rolls parted to permit the passage of seams. The guiders have been tested on fabrics ranging from voiles to heavy duck, and records kept by the manufacturer show an average cost of $0.05 per 10 hr. of operation and a maintenance cost of $0.10 for the equivalent of 34 months of service. The new guider is so designed that, by drilling four holes, any of the air-operated devices built by the company can be changed over to electric.



Illuminated Magnifying Instrument

Five-power magnification, with illumination in the field of vision is offered in the Flash-O-Lens, made by E. W. Pike & Co., Box 38, Elizabeth, N. J. The instrument employs a double-lens and the lenses are held in focus by a ring of Bakelite Molded. A side opening in the frame makes it possible to use instruments or a pencil while examining an object. The field of vision is illuminated by an electric bulb so placed in the handle that direct light does not reach the eye of the observer. Either battery or electric models are available.

Proportioning Machines

Three new proportioning machines, employing the direct transmission of pressure differentials from pitot tubes and utilizing liquids as fluid pistons, have been introduced by D. W. Haering & Co., Inc., 3408 Monroe St., Chicago. Model E, or corrosive solution feeder, has been constructed to provide sight-feed indication. It is possible to feed such solutions as sulphuric acid and ferric chloride and count the number of drops being fed per minute. Model F was developed for feeding oils and organic solvents into gasoline. Model A, which is a single-compartment unit, was designed to make possible the application of proportioning units in service where initial costs have previously been prohibitive.

Stock Dryer

Aero-Therm units employed in the automatic stock dryer developed by Philadelphia Drying Machinery Co., 3351 Stokley St., Philadelphia, are planned to deliver large volumes of air at high pressures, reduce power consumption, and secure efficient heat transfer. As a result, the company states that capacity is increased 25 to 50%, as compared with older models, production costs are lowered by 25 to 33%, and smaller machines are capable of handling a greater production.

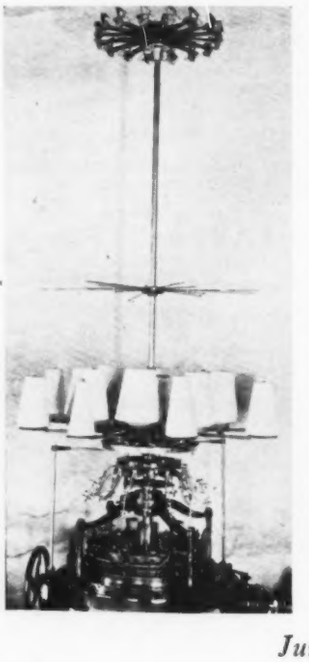
The new system of air recirculation and heating consists of a high-speed fan, streamlined interiors, fin-type heating coils located at the side of the dryer in the same compartment as the fan, and individual motor drives for fans. Other improvements to the dryer include straight-line conveying apron, which is long-wearing and easily cleaned; double-seal insulated paneling; and variable-speed drive.

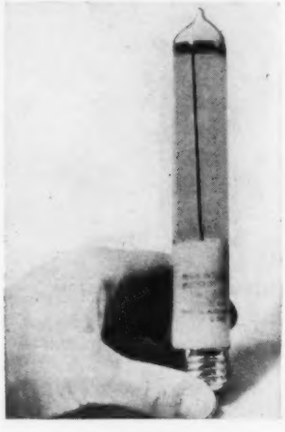
Stop Motion for Knitting Machines

Speed in action and simplicity in operation are claimed for a new electric stop motion developed for circular knitting machines by the Crawford Manufacturing Co., Inc., New Brunswick, N. J. It consists of an electrified spider and an electrified lower ring, both operated from a 12-volt transformer and with all electrical mechanism inclosed. It is easily threaded and is adjustable to all weights of yarn. When the shipper handle is thrown, the circuit is broken and there is then no current in any part of the machine.

The spider will stop the machine for either a tight or a loose yarn, as the lever over which the yarn passes will make contact whether it is allowed to spring up or is pulled far down. At the lower ring the yarn passes through three eyes, of which the center is located on the end of a spring and serves not only to fly up and complete the circuit when released, but also to afford tension on the yarn. This tension is adjustable both at the spring and at the eyes.

The double protection afforded by the spider and the ring guards against trouble anywhere between the cone and the needles. In addition, a push-button stop is located handy to the operator.





Smaller Size of Mercury-Vapor Lamp

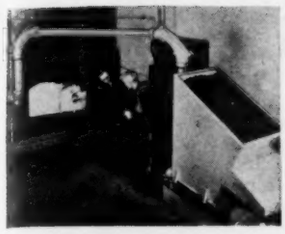
Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has announced a 250-watt, high-intensity, mercury-vapor lamp that is especially suitable for low-mounting-height installations. The new lamp can be operated in any position and in existing fixture equipment, if of the inclosed type. The efficiency is approximately 30 lumens per watt, and the lamp produces 7,500 lumens of light for an average life of 2,000 hr. Combination with incandescent lamps produces illumination similar to daylight. The 250-watt size is designed for operation on a-c. only, and then in conjunction with a current-regulating transformer designed to meet the particular electrical values of the lamp.

Laboratory Steamer

Experimental steaming of fabrics in the laboratory can be done with the Steamax, a portable steamer marketed by Steamax, 4517 Wayne Ave., Philadelphia. The boiler is small enough so that it can be carried about in the hand, and all that is necessary is a connection with any 110-volt a-c. or d-c. current. Steam comes out of a nozzle that is held several inches from the cloth. Junior and Senior models are available.

Mechanical Stoker

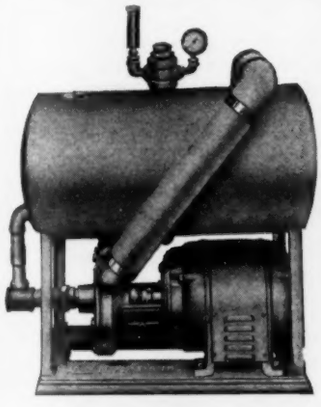
Iron Fireman Mfg. Co., 1305 S.W. 12th Ave., Portland, Ore., has announced a new type of stoker which is designed to fire efficiently certain low-grade coals, such as the so-called "steam" coals. Lumps up to 1½ in. in size, as well as the finer particles, are floated from hopper to firebox on a stream of air. The coal is spread in a thin



layer over the grates, and the finer particles are burned in suspension. Clinkers are said to be avoided by keeping the combustion rate uniform throughout the shallow fuel bed, with the temperature at the grate line below the fusing point of the ash. The unit is suited to boiler rooms of restricted space, as the stoker can be located to fit conditions. It is only necessary to cut a hole in the boiler front large enough to admit the spreader nozzle.

Pipe-Line Insulation

Low heat conductivity and ability to retain its physical strength and insulating value after repeated submergence in water are claimed for Adsco Cell-Concrete, a material for insulating underground steam and hot-water lines, now offered by American District Steam Co., North Tonawanda, N. Y. The product is made from Portland cement mixed with a foam, producing a light-weight cellular concrete of a specific gravity of



about 0.3. It can be mixed on the job and poured around one or more pipes in conduits.

Conveyer Rollers

An addition to its knurled-keylock line of roller conveyors, in the form of rollers incorporating hexagon-shaped axles, has been announced by Mathews Conveyor Co., Ellwood City, Pa. The additional line will cover practically all the present sizes now available, plus several intermediate sizes not heretofore available. Seamless-steel tubing, hardened-steel bearing parts, and solid-steel inner and outer ball races are features.

Business News

R. L. Sjostrom & Co., Inc., Lawrence, Mass., announce the opening of a Philadelphia office and showroom in the Record Bldg., Broad and Wood Sts.

David Speizman, Inc., 63 Mary St., Ashley, Pa., announces the appointment of Morriss Speizman as southern representative, with headquarters in the Commercial National Bank Bldg., Charlotte, N. C.

Borne Scrymser Co., 17 Battery Place, New York, tendered Philip C. Moon, vice-president, a testimonial dinner on the completion of a 30-year term of service.

National Association of Textile Machinery Manufacturers, 38 Chauncy St., Boston, elected the following officers at the annual meeting on May 7: president, John F. Tinsley, Crompton & Knowles Loom Works; vice-president, E. Kent Swift, Whitin Machine Works; treasurer, Samuel F. Rockwell, Davis & Furber Machine Co.; secretary, William H. Cliff.

Commercial Investment Trust, Inc., New York, has declared a stock dividend of 20% on the common and a cash dividend that places the shares on an annual dividend basis of $3.60, after allowing for the increase in the number outstanding.

George F. Langevin, operating a service in textile machinery, supplies, appraisals and liquidations, has moved to new and larger quarters in the Sun Building, Lowell, Mass. He has been actively connected with the textile machinery for the last 25 years.

Industrial Dryer Corp., Stamford, Conn., has lately sold H-W Conditioners for twist setting to Joy Silk Mills, Hartsville, S. C.; to the M. Seltzer Throwing Mill, Elmira, N. Y.; to the Appleton (Wis.) Woolen Mills.

Ruti Machine Works, Zurich, Switzerland, manufacturers of general textile machinery and specializing in silk and rayon looms, has appointed E. H. Furrer, 114 Broughton Ave., Montreal West, Que., as Canadian representative.

New York & New Jersey Lubricant Co., New York, recently celebrated its 40th anniversary. Lewis W. Thomason, Charlotte, N. C., southern manager, has been with the organization for about 30 years.

H. A. Metz & Co., Newark, N. J., chemical and dyestuffs manufacturers, have appointed Jack Button sales representative in North Carolina and Tennessee, with headquarters in Charlotte, N. C. R. R. Dorsette, Anderson, S. C., represents the company in Georgia, Alabama and South Carolina.

Joe M. Ballentine, formerly connected with National Aniline & Chemical Co., has become associated with Smith, Drum & Co. in the southern sales office, Charlotte, N. C. Mr. Ballentine is a graduate of Clemson College Textile School, class of 1933, and is a member of Phi Psi textile fraternity. R. D. Howerton, southern representative of Smith, Drum & Co., will continue in the southern office, devoting a portion of his time to the laundry industry.

H. H. Arnold Co., Inc., Rockland, Mass., rubber covering machines, has opened an office at 171 Madison Ave., New York, in charge of W. S. Taylor, Territory covered includes New Jersey.

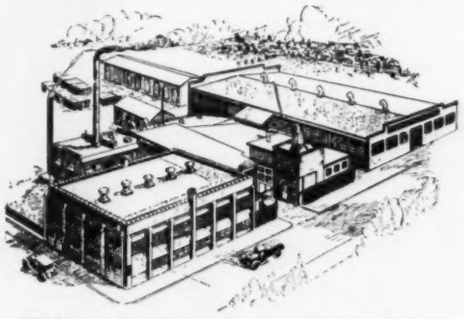
James Talcott, Inc., New York, has been appointed factor for the following: Brilliant Fabrics, Inc., New York; Noel Bequie, New York; J. C. Siegelman Co. Inc., New York; and Raynit Mills, West New York, N. J.

Glyco Products Co., Inc., has moved to 148 Lafayette St., New York.

Arkansas Co., New York, has appointed A. M. Burt, Greensboro, N. C., as representative in North Carolina and Virginia.

E. F. Houghton & Co., 240 West Somerset St., Philadelphia, announce that L. D. Holland, formerly sales manager of the western division, has been manager of research, with headquarters in Philadelphia. A. A. Miller, formerly head of the Cincinnati office, has been promoted to the position of western sales manager and will make his headquarters in San Francisco.

Quaker Chemical Products Corp., Conshohocken, Pa., announces that John M. Zurn, Jr., formerly connected with the E. F. Zurn Co., has joined the company in a technical and sales capacity.



Piedmont Sundries Co. acquired by Terrell Machine Co. as reported in our last issue

New Publications

Profits and Losses in Textiles: Cotton Textile Financing Since the War; by Stephen Jay Kennedy; Harper Brothers, New York; $3.50.

The literature on the economics of the cotton textile industry is all too meager. This in itself is ample grounds for welcoming any worth-while new addition to that literature—and Mr. Kennedy's book certainly qualifies as such. It takes on added significance from the fact that it is written from the viewpoint of the average investor or holder of mill securities. This does not mean that it is of any less interest to those engaged in the industry; on the contrary it is this reviewer's opinion that its preparation from that viewpoint enhances its value to the industry itself.

Mr. Kennedy presents extensive facts about the present financial situation in the industry in a scientific, unbiased manner. One of the most interesting sections is the series of chapters analyzing outstanding examples of financing which have been undertaken in connection with mergers. Those so analyzed include Lockwood Greene & Co. and affiliated companies, Consolidated Textile Corp., Berkshire Fine Spinning Associates, United Merchants & Manufacturers, Inc., Textiles, Inc., Alabama Mills Co., and New England Industries, Inc. Each of these is treated in a separate chapter, and a summary chapter evaluates these developments from an over-all standpoint.

Another important group of chapters includes those treating basic economic principles as applied to this industry and their relation to profits and losses. The author does not seek to advocate any particular measure but rather attempts to arrive at an impartial and unbiased conclusion with respect to the various proposals for solving the problem of continual losses which have been advanced from various quarters.

Mr. Kennedy has been employed for some years in an executive and research capacity in one of the important textile companies. His book has both reader and reference interest to all engaged in the cotton textile industry.

Life Values in the South, by Wylie Cicero Hamrick; published privately by his family at Gaffney, S. C.

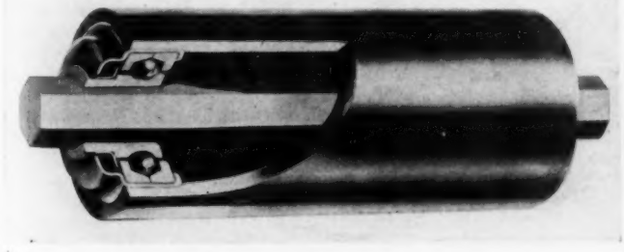
The author, a prominent cotton manufacturer who died last year, stated in the preface (written in 1931) that there is room for such "unpretentious narratives"—the biographies of "average men." While Dr. Hamrick's accomplishments as manufacturer, legislator and public-spirited citizen placed him in a rating far above "average," his characterization of this little volume is correct in that it merely sets down in a homely sincere way the thoughts, motives and activities of a man whose life ran along lines similar to those followed by many business men. There is room for that type of human document.

Obviously the chapters of most interest to the textile industry are those dealing with Dr. Hamrick's career as a cotton manufacturer. He developed the Hamrick chain of five mills, with headquarters office at Gaffney. His shrewd observations on best methods of financing and operating cotton mills are far more than interesting: they have dollars and cents value.

When one puts this book down, it is with a feeling that he has become well acquainted with the author; that he has peered into the mind and heart of a successful man—successful in business and in living. It is a worth-while experience.

Jute Bags, Packs, Pockets, and Sacks. T. Woodhouse & H. Brand, Macmillan Co., 60 Fifth Ave., New York. $4.50.

This book discusses in detail the manufacture of jute fabrics for wool packs, sacks, bags, bale covering, etc. Subjects covered include the following: types of fabrics employed, shrinkage allowances in weaving and finishing, methods of cutting and folding; construction of wool packs, manufacture of cotton bagging, seamless or tubular bags and sacks, and printing of sacks.



THE PERSONAL PAGE

T. H. Webb, formerly president of Locke Cotton Mills Co., Concord, N. C., and **C. W. Byrd,** secretary-treasurer, were elected president, and secretary-treasurer respectively, under the new organization plans, of Davidson (N. C.) Cotton Mills. **J. F. Cannon,** Concord banker, and former active head of the Wiscassett Mills Co., Albemarle, N. C., was elected vice-president of Davidson Cotton Mills, while **M. L. Cannon,** of Charlotte, former president of the mills, was elected chairman of the board. Messrs. Webb and Byrd will still maintain their residences in Concord.

Russell T. Fisher, secretary of the National Association of Cotton Manufacturers, Boston, Mass., has also been elected treasurer of that body to succeed **William S. Pepperell,** who has joined Burlington (N. C.) Mills, Inc.

F. H. Hillery, president of Manufacturers Textile Export Co., New York, has been elected president of Textile Export Association of the United States. Other officers are: vice-president, **W. F. Adam** of Federated Textiles, Inc.; treasurer, **W. Ray Bell** of Association of Cotton Textile Merchants of New York; secretary, **F. A. Colt** of Cotton-Textile Institute.

Joel M. Barnes, of Barnes Textile Associates, Boston, sailed May 30 on the *Britannic* for a two months' tour of England and Scotland during which he will visit the different textile centers to observe conditions and study recent progress. He will return on the *Queen Mary* the latter part of July.

W. Robert Blum, assistant treasurer, United Piece Dye Works, Lodi, N. J., has resigned that position.

Barnet Beckenstein, who resigned recently as vice-president of the Murray Knitwear Co., Troy, N. Y., is the head of the newly organized Dunlap Knitting Co. in that city.

Arthur H. Dick, for six years assistant to **R. C. Dick,** vice-president and treasurer of Louisville (Ky.) Textiles, Inc., has been elected president and treasurer.

W. J. Carter, vice-president of Burlington Mills Co., Greensboro, N. C., has resigned. He has been identified with rayon weaving since 1924, and it is rumored that he plans to re-enter the business.

F. A. Townsend, formerly of Ninety-Six, S. C., has been promoted to the vice-presidency of Enterprise Mfg. Co., Augusta, Ga. For several years he served with Sibley Mfg. Co., and for a time was superintendent. He is a graduate of N. C. State College Textile School.

R. Hill Freeman, president of Newnan (Ga.) Cotton Mills, recently scored a hole-in-one, 151 yd., while playing with a foursome on the Donald Ross course of the Highland Country Club at LaGrange, Ga.

J. L. Hutcheson, president and treasurer, Peerless Woolen Mills, Rossville, Ga., recently was given a surprise party by 1,400 employees and friends. A life-sized portrait of Mr. Hutcheson, a gift from the employees, was presented him, and will hang in Recreation Hall. He organized Peerless Woolen Mills in 1906. Employment has grown from about 150 persons at the time of organization to approximately 1,500.

A REUNION

Thurman Chatham, president, Chatham Mfg. Co., Winston-Salem, N. C., and cattle breeder, is witnessing a reunion between Admiral Byrd and "Klondike," a cow from Mr. Chatham's herd which accompanied the recent Antarctic Expedition.

Earl Constantine, managing director, National Association of Hosiery Manufacturers, **Herbert Gutterson,** president, Institute of Carpet Manufacturers of America, and **Harvey Willson,** general manager, National Upholstery and Drapery Textile Association, have been elected members of the executive committee of the Trade Association Executives of New York City.

Harry W. Anthony, treasurer and general manager of H. W. Anthony Co., Strausstown, Pa., has been elected to the State Legislature to fill a vacancy.

Clyde P. Tillotson has been appointed New York agent of Lincoln Bleachery & Dye Works, a unit of the Lonsdale (R. I.) Co.

C. B. Robinson, secretary-treasurer of Penmans, Ltd., was the guest of honor at a dinner held recently in the Royal York Hotel, Toronto, on the completion of 50 years of service.

Andrew W. Craig, superintendent of Windsor Print Works of Consolidated Textile Corp., North Adams, Mass., for the last 15 years, has been appointed general manager of the plant, succeeding the late Joseph Bennett.

Textile Calendar

Southern Textile Association, annual convention, Mayview Manor, Blowing Rock, N. C., June 19 and 20, 1936.

Committee D-13, A.S.T.M., annual meeting, Chalfonte-Haddon Hall, Atlantic City, N. J., July 2, 1936.

National Exposition of Power and Mechanical Engineering, Grand Central Palace, New York, Nov. 30 to Dec. 5; also annual meeting of American Society of Mechanical Engineers.

American Association of Textile Chemists & Colorists, annual meeting, Providence, R. I., Dec. 4 and 5, 1936.

Albert Brend has resigned as manager of Narragansett Woolen Mills, Inc., Wakefield, R. I.

Walter Whipple, agent of Nashua (N. H.) Mfg. Co., has been appointed vice-president in charge of manufacturing. He has been with the organization for over 30 years.

E. M. Levanion, formerly in charge of sales of Pelzer Mfg. Co., and Tucapau Mills, has joined Pacific Mills organization to manage the toweling products of Startex Mills, Spartanburg, S. C., which succeeds to the business of Tucapau.

Herman A. Rausch, veteran silk mill operator, has been placed in charge of the Atmore (Ala.) Silk Mills, which resumed operations May 22 after being closed for several months. The concern is operated by the bondholders.

Lewis M. Carpenter has resigned as general manager of Drayton Mills, S. C. He joined the firm in 1935, and has been active in manufacturing and in the New York market for 25 years. Mr. Carpenter has not announced his plans.

John R. Federline, Jr., formerly general superintendent at the Lanett (Ala.) unit of West Point Mfg. Co., has resigned as general superintendent at the Beaumont Mfg. Co., Spartanburg, S. C., to resume his old post at Lanett.

J. D. Green, superintendent of the Cherryville (N. C.) Cotton Mill, has been made superintendent of the Bamberg-Santee Mills, Bamberg, S. C. He succeeds **O. G. Moorehead,** who has accepted a position as superintendent of three mills in Lumberton, N. C.

S. G. Taylor, for some years a member of the sales staff of Wamsutta Mills, New Bedford, Mass., has been appointed sales representative of that firm to cover New England.

Andrew W. Macy, former general superintendent, Nashawena Mill, New Bedford, Mass., has been elected treasurer of the Taber Mill, succeeding A. F. Burgess. Mr. Macy is son of **F. B. Macy,** former treasurer of the Soule Mills.

J. C. Lindsay has been appointed superintendent of the new dye house of the St. Pauls (N. C.) Cotton Mills.

A. J. May, formerly with Pelzer Mfg. Co., has joined the cotton gray goods department of Deering, Milliken & Co., New York, N. Y.

Harry L. Dalton, southern salesmanager of Viscose Co., with offices at Charlotte, N. C., has been elected a director of that company.

R. H. Gaddy, general superintendent of Magnet Mills, Knoxville, Tenn., has resigned to become general manger of Baker-Moise Hosiery Mills, Dallas, Tex. He is from Albemarle, N. C.

M. T. Grimes, for many years agent of Chicopee Mfg. Corp. of Ga., Gainesville, is now manager of Aurora (Ill.) Cotton Mills.

George Feindel, for several years chemist at Union Bleachery, Greenville, S. C., is now with Rock Hill (S. C.) Printing & Finishing Co.

T. B. Roach, of Columbia, S. C., graduate of Clemson Textile School, was awarded the National Association of Cotton Manufacturers' medal for his excellent work in textiles during his four years at Clemson. He has accepted a position with the Carolina Cotton & Woolen Mills, Spray, N. C.

Philip B. Weld was elected president of the New York Wool Top Exchange June 1. Other officers elected were: **Arthur R. Marsh,** first vice-president; **H. Clyde Moore,** second vice-president; and **Clayton B. Jones,** treasurer. Three new members of the board of governors are: **Marshall Geer, Jr., James C. Royce** and **Arthur O. Wellman.** Other members of the board were re-elected.

John C. Botts, partner in Jenks, Gwynne & Co., was elected president of the New York Cotton Exchange, June 1. Other officers elected were: **Alpheus C. Beane,** vice-president; and **Clayton B. Jones,** treasurer. Three new members to the board were: **Frank G. Brown, James Coker** and **P. Manfred Schwarz.**

L. O. Blanton was elected president of the Dallas Cotton Exchange to succeed **A. Starke Taylor. Otto Wood** is the new vice-president for 1936.

C. J. Ashmore has resigned as superintendent of Rushton Cotton Mills, Griffin, Ga., and has been succeeded by **V. P. Thompson,** formerly superintendent of Callaway Mills, Manchester, Ga., plant.

George A. Dobbie, has been appointed president of Newlands & Co., Galt, Ont., **Clive Stauffer** has been appointed vice-president, while **E. C. Canning** has been appointed secretary-treasurer.

Irving Schaefer has been elected secretary and a director of the Frissell Fabric Co., Middletown, Conn., succeeding **Carl G. Johnson** who continues as treasurer.

Sam Turner has been made superintendent of Manetta Mills, Monroe, N. C., going there from Roanoke Mills Co., Roanoke Rapids, N. C. **R. A. Willis, Jr.,** is general superintendent.

Marion T. Grimes, formerly agent for the Chicopee Mfg. Co., Gainesville, Ga., has accepted the position of manager of the Aurora (Ill.) Cotton Mills.

J. P. Heaney, superintendent of Goodyear Clearwater Mills, Rockmart, Ga., has been transferred to the plant of the company at New Bedford, Mass., and personnel manager **C. P. McIntyre** has been transferred to the home plant at Akron, Ohio. **L. S. Hall,** formerly superintendent at New Bedford, has succeeded Mr. Heaney as superintendent at the Rockmart plant, and **J. E. Murphy,** likewise from New Bedford, will succeed Mr. McIntyre as personnel manager of the Goodyear Clearwater Mills.

Thos. H. Webb, now president of Davidson (N. C.) Cotton Mills, under its new organization.

Jerome Levine, guest of honor at dinner of Commodity Exchange last month.

Douglas Woolf Honored for 20-Year Service

Douglas G. Woolf, editor of TEXTILE WORLD, was guest at a birthday dinner given him at the Waldorf-Astoria Hotel, New York, May 13, by friends in the textile industry, to mark the 20th anniversary of his connection with this publication.

Those sponsoring the dinner included: W. Ray Bell, president, Association of Cotton Textile Merchants of New York; Arthur Besse, president, National Association of Wool Manufacturers; Fessenden S. Blanchard, Pacific Mills; Roy A. Cheney, managing director, Underwear Institute; Paul T. Cherington, of Cherington, Roper & Wood; Earl Constantine, managing director, National Association of Hosiery Manufacturers; Charles Whitney Dall, president, National Rayon Weavers Association; Goldthwaite H. Dorr, chairman of board, Cotton-Textile Institute; Paolino Gerli, president, International Silk Guild; William H. Gosch, president, National Association of Hosiery Manufacturers; Paul B. Halstead, secretary, Cotton-Textile Institute; Franklin W. Hobbs, chairman, Textile Foundation; Stanley B. Hunt, Textile Economics Bureau; W. O. Jelleme, Pacific Mills; David Jennings, J. P. Stevens & Co.; Col. Chas. F. H. Johnson, president, Botany Worsted Mills; Leavelle McCampbell, of McCampbell & Co.; A. W. McCready, National Federation of Textiles; William M. McLaurine, secretary, American Cotton Manufacturers Association; Ernest C. Morse, director, Associated Wool Industries; Sydney P. Munroe, assistant to president, Cotton-Textile Institute; Dr. Claudius T. Murchison, president, Cotton-Textile Institute; F. K. Nixon, Riverside & Dan River Cotton Mills; Edward T. Pickard, chief, Textile Division, Bureau of Foreign & Domestic Commerce; George P. Ray, Riverside & Dan River Cotton Mills; Albert L. Scott, president, National Association of Finishers of Textile Fabrics; George A. Sloan, of George A. Sloan & Co.; Ashton M. Tenney, of A. M. Tenney Associates; Peter Van Horn, president, National Federation of Textiles; and Arthur D. Whiteside, president, Dun & Bradstreet.

Mr. Sloan acted as toastmaster and brief talks were made by Messrs. Besse, Constantine, Dorr, Gerli, Hobbs, and Johnson. During the evening, Mr. Woolf was presented with a silver tray.

Obituary

Edmund Spencer Cruttenden, aged 62, for many years a leading factor in the field of printed cottons, died May 31, at his home in New York. Born in Greenpoint, L. I., he started in cotton textiles in 1890 with Garner & Sons. Later he built a national following as salesmanager of M. C. D. Borden & Sons, serving that firm from 1911 to 1934.

Allan McNab, aged 65, formerly president of Pelzer (S. C.) Mfg. Co., died at his home in Boston, Mass., on May 29.

J. Wesley France, aged 69, handweaving instructor at the Philadelphia Textile School, died May 28, at his home in Chester, Pa. He was buried June 1, in Andover, Mass.

E. H. Shanklin, aged 64, manager of Franklin Mills, at Greer, S. C., died May 28, at his home there.

S. Endo, aged 68, president of the Gunze Raw Silk Mfg. Co., Ltd., of Japan, and an outstanding figure in the raw silk industry, died in Tokio May 27. He headed the Gunze organization for 19 years.

Charles E. Topham, aged 73, pioneer in the development of the viscose process of making rayon, best known for his invention of the Topham Spinning Box, and lately an experimental engineer for Courtaulds, Ltd., died in London, Eng., on May 12.

Joseph Bennett, aged 69, vice-president of Consolidated Textile Corp. and general manager of the company's Windsor Print Works, North Adams, Mass., died at his home there on May 7.

Gustave A. Wahler, aged 55, president of Slatedale (Pa.) Knitting Mills, died in Easton on May 19.

Lincoln Lowenstein, aged 63, president of M. Lowenstein & Sons, Inc., New York, died in New York on April 25.

Philip M. Pfaffman, aged 80, head of the old Hunt Mills, Worcester, Mass., until his retirement three years ago and one of the oldest textile manufacturers in the vicinity, died there on May 3.

David Siegel, aged 40, treasurer of Williamsburg Knitting Mills, Brooklyn, N. Y., was fatally shot by a payroll bandit on May 18.

George E. Lewis, secretary of the former Lewis E. Taubel, Inc., Norristown, Pa., died in Philadelphia on May 20.

William H. Bower, aged 87, agent of the old Columbia Woolen Co., Lewiston, Me., for over 30 years, died in Auburn, Me., May 1.

Frank W. Phelps, aged 76, general manager of Old Town (Me.) Woolen Mills, Inc., died in Bangor last month.

George H. Luscombe, aged 84, at one time president of Brook Woolen Co., Simcoe, Ont., died recently.

John P. Steinborg, aged 70, identified with the knitting industry in Appleton, Wis., for nearly half a century, died May 12, after a short illness. He was formerly associated with Superior Knitting Works, Fox River Knitting Mills, and Steinborg & Sons Knitting Mill.

William H. Bertolet, Sr., aged 74, founder and president of Laurel Soap Mfg. Co., Inc., Philadelphia, died suddenly at his home on May 9.

Alfred Armstrong, aged 68, superintendent of Waterhead Mills, Lowell, Mass., and connected with the concern for over 35 years, died on May 16.

Claxton Monro, aged 51, chief chemist of American Woolen Co., Shawsheen Village, Mass., since 1930 and connected with that organization for 27 years, died at his home on May 12.

George S. Guyer, aged 79, for 24 years an overseer in the pin room of Atlantic Mills, Olneyville, R. I., and for 27 years with H. & B. American Machine Co., Pawtucket, R. I., died at Wickford, R. I., on May 17.

Arthur Cornelius Everest, aged 77, who retired in 1930 as overseer, finishing department, American Thread Co., Willimantic, Conn., after 54 years with the company, died on May 10.

Luther J. Holton, aged 46, manager of Glendale Spinning Mills, Ltd., secretary of Chipman-Holton Knitting Co., Ltd., and a director of Butterfly Hosiery, Ltd., all of Hamilton, Ont., recently lost his life in a shotgun accident.

Thomas McQuillan, aged 75, Toronto manager of Dominion Textile Co., Ltd., died May 4.

TEXTILE WORLD'S

Cotton Digest

THE sudden emergence of what some had regarded as an old chestnut—cotton roads—has given these skeptics a jolt. One of them confessed to us recently that he had thought it was just one of those ideas that a New Uses Section gets up to show that it is still alive. He felt the idea had been kicking around for years—and then all of a sudden he learns that the Government is actually buying some millions of yards of fabric.

The answer, we believe, is that most everyone is inclined to look on a great many new uses as nice, but not important, whereas all that is needed, providing the basis is sound of course, is plugging. Cotton roads got exactly that; they didn't just happen. There has been far more behind-the-scenes activity than is generally realized. The New Uses Section of the Cotton-Textile Institute will please take a bow.—*Editor.*

Markets Show Improvement

The cotton gray goods market opened slow in May, with some constructions selling at the lowest prices in three years. Even these low prices failed to bring out buying interest. Toward the middle of the month, sales picked up slightly although prices generally remained unchanged. The Charlotte meeting tended to improve the market, and prices climbed in some instances ⅛c. The month closed with a fair volume of business on the records, much of it, however, at unprofitable levels. No plans had been announced for organized curtailment although individual manufacturers said that they anticipated considerable curtailing during July and August.

The cotton yarn market opened with prices low and volume unsatisfactory. Activity during the month more or less paralleled that of the gray goods market, with a slight improvement evident toward the latter part of the period. Shipments of combed yarn averaged about 25% more than sales, and production was reported to have held closely to the volume of delivery requisitions, week by week. There was little improvement in margin.

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Chattanooga Yarn Tournament

Over 300 were present at the annual golf tournament and outing of the Chattanooga Yarn Association held at the Chattanooga (Tenn.) Country Club, May 21 and 22. Wilbur Lawson, of Standard-Coosa-Thatcher Co., acted as master of ceremonies at the banquet. A short talk was made by Garnett Andrews, president of Richmond Hosiery Mills. R. H. Griffith and Bud Johnston delivered the golf prizes and trophies. Clyde Wilson, president of Champion Knitting Mills, Marietta, Ga., walked off with golf honors, winning both the Bob Smith trophy and the association trophy, which gives him two legs up on each toward permanent possession. He also won the sterling pitcher offered by Dixie Mercerizing Co. Skeet winners included H. A. Vestal, Jr., Warren Spivey, O. H. Shuptrine, Clifford Campbell, and Richard Edge.

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Southeastern Cottons Reports 20% Increase

Despite adverse selling conditions, Southeastern Cottons, Inc., showed an increase in gross sales of 15 to 20% above the previous year, declared Howard E. Coffin, chairman of the board, at the annual directors' meeting held last month at The Cloister, Sea Island Beach, Ga. Approximately 100 members of Southeastern Cottons, with their ladies and guests, enjoyed all kinds of sports in the semi-tropical setting of the Georgia coast. All officers were re-elected.

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S.T.A. Meets June 19 and 20

The Southern Textile Association will hold its annual convention June 19 and 20 at Mayview Manor, Blowing Rock, N. C., according to Harvey Hill, secretary.

Dr. Claudius T. Murchison, president of the Cotton-Textile Institute, has accepted an invitation to address the meeting. He will speak at the business session on Saturday morning. Donald Comer, of Avondale Mills, president of the American Cotton Manufacturer's Association, and Robert R. West, president of Riverside & Dan River Cotton Mills, also will speak. President John A. McFall, of Rockingham, N. C., will preside. Banquet on Friday night will have no formal speaker.

Foreign Trade Statistics

Imports of cotton cloth for consumption during March totaled 358,973 sq. yd. unbleached cloth valued at $62,241, 8,597,237 sq.yd. bleached cloth valued at $538,804, and 3,382,511 sq.yd. printed, dyed or colored cloth valued at $462,917.

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Prices and Activity

Key cotton prices of June 1 and a month ago contrasted with those of the last two years follow:

	June 1 1936	May 1 1936	June 1 1935	June 1 1934
Spot Cotton, N. Y...	11.79	11.61	11.55	11.80
Ditto, high previous month.....	11.77	11.88	12.50	11.70
Ditto, low previous month.....	11.61	11.55	11.30	10.75
10s hosiery cones....	22½	23½	26	26½
10s/2 carded skeins..	22½	23	26	26½
20s/2 carded peeler warps.....	24½	25½	29	30
60s/2 combed peeler warps.....	50	52	63	57
60s/2 mercerized cones.....	64	66	70	70
37 in., 3-yd. drill....	8	8¼	9	9¼
38½-in. 64x60s.....	5¼	5 13/16	6¼	6¼
36-in. 4-yd. 56x60s...	6¼	6¼	7¼	7¼
Denim, 2.20s.....	13	13	14½	15½

Statistics of particular interest to cotton manufacturers showing March operations and the raw material situation:

Spindle activity..	110.9% capacity, or 7,320,181,265 spindle hours
Cotton consumed.	576,762 bales
Cotton exported..	352,710 bales
Cotton imported..	12,629 bales

March operations for comparison:

Spindle activity..	108.1% capacity, or 7,263,926,919 spindle hours
Cotton consumed.	548,913 bales
Cotton exported..	404,741 bales
Cotton imported..	15,662 bales

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Industry News

Completion of at least 565 miles of 18 ft. cotton roads in nineteen states this summer is assured, it is reported to the Cotton Textile Institute by the Department of Agriculture. The first contracts ever placed by any Government for cotton road-building fabric were scheduled to be awarded late last month.

A textile museum may be constructed in Greenville, S. C., according to plans developed by city officials and Robert S. Whitelaw, WPA art director for South Carolina. The Federal Government will furnish $175,000 for the building, provided Greenville will pay 20% of the amount. The city already has authorized donation of a lot in a public park. Plans drawn up in Washington call for the building to be constructed of plate brick which permits 87% light filtration, and eliminates necessity for windows. It will house all types of machinery and products depicting the development of the textile industry.

Over 50% of the orders received for blue denim for overalls and work clothes now specify that it be sanforized-shrunk, according to John C. Turrell, director of Cluett, Peabody & Co., who recently returned from a visit of southern mills manufacturing denims. A few months ago, he said, only 10 to 15% of the orders specified pre-shrunk goods. Several new orders for additional sanforizing equipment have been placed.

A recent check-up of damage done to

southern mills by the tornadoes ot some weeks ago showed that Pacolet Mfg. Co., Gainsville, Ga., was damaged to the extent of $1,000,000 to $1,250,000. Some 4,000 spindles are being salvaged from approximately 60,000 operated by the mill. Owen Osborne, Inc., Gainesville, was damaged $40,000 to $50,000. Anderson Cotton Mills, Anderson, S. C., received damage amounting to $15,000 to $20,000.

Governor Olin D. Johnston, of South Carolina, late last month signed a bill recently passed by the State legislature calling for a 40-hour textile week, providing similar laws are adopted in North Carolina and Georgia. Existing laws provide for a 55-hour week.

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Cotton Mill News

Avondale Mills, Sylacauga, Ala., and Alexander City, Ala., plants, have had the slasher cylinders resurfaced and repaired, four of these were also recovered with new copper by Textile Shop, Spartanburg, S. C.

Florence (Ala.) **Cotton Mill** is undertaking an improvement program to cost $100,000. New machinery costing $90,000 will replace old. The plant will close during the two months which will be required for the work.

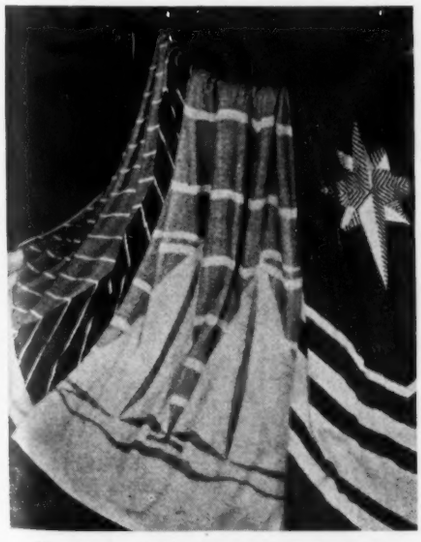
Georgia-Kincaid Mills, Griffin, Ga., are replacing some of the older looms with new Crompton & Knowles looms.

Harmony Grove Mills, Commerce, Ga., has completed installation of one Entwistle high-speed warper and two Abbott high-speed winders.

Burton-Dixie Corp., Chicago, Ill., has leased two-story mill, bounded by Racine Ave., Allport St., and Cermak Rd., totaling about 70,000 sq.ft. of floor space, and will remodel for new mill, supplementing production of existing plant at 2024 South Racine Ave., which will continue as heretofore.

Pepperell Mfg. Co., Fall River, Mass., has expansion program under way in rayon weaving division, with installation of new looms and auxiliary equipment.

Carolina Webbing Co., Inc., Greensboro, N. C., recently chartered with capital of $250,000 by J. K. Voehringer, Jr., president, Mock, Judson & Voehringer Co., plans new mill for the elastic webbing products. Initial plant is reported to cost over $75,000, with equipment. Frank P. Hobgood, Greensboro, is interested in new company.



Nautical motifs in beach towels by Cannon

Anchor Mills, Huntersville, N. C., has repaired and made many improvements in its mill building and mill village.

Norwood (N. C.) **Mfg. Co.** has installed the Breton Mineral Process in their plant on the latest Saco-Lowell one-process picking.

Ranlo Mfg. Co., with plants at Ranlo, N. C., Gastonia, N. C., and Worth, N. C., is installing additional automatic looms in all of the four plants, along with other mechanical changes and improvements.

Rocky Mount (N. C.) **Mills** are outfitting a building with complete yarn machinery set-up for experimental purposes. Noel F. Gibson, a former instructor at the North Carolina State College, Raleigh, N. C., will be in charge of this miniature mill.

Virginia Cotton Mills, Swepsonville, N. C., are equipping their pickers with an improved Borne Scrymser spraying device for conditioning the raw stock.

Hart Cotton Mills, Tarboro, N. C., are erecting new weaving department, where the machinery from the Fountain Mill, a plant of the Hart Cotton Mills, will be installed, and all of the weaving done. The cloth room of the Hart plant will be enlarged to take care of increased production. Two new Barber-Colman spooler and warper sets will be installed.

Wade Mfg. Co., Wadesboro, N. C., is having the Textile Shop of Spartanburg, S. C., install their slasher exhaust unit on the plant's slashing equipment.

Erwin Cotton Mills, West Durham, N. C., plant, are installing 1,500 Midget feelers and thread cutters. J. D. Bailey has charge of the work.

Clearwater (S. C.) **Mfg. Co.** is building a two-story, 40x100 ft. addition.

Springs Cotton Mills, Lancaster, S. C., plant, now have 150 looms operating in the addition which was recently constructed. Four hundred and fifty additional looms are being set up in this addition, and will be put into operation soon.

Sellers Mfg. Co., Saxapahaw, N. C., has under way a modernization program. New equipment installed included seventeen new long-draft spinning frames and a new 825 hp. Superior engine. Ten more long-draft frames are to be installed later. Six new dwellings will be constructed for operatives.

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Cotton Financial

Bradford Cotton Mills, Montgomery, Ala., have been purchased by O. F. Feil, an Atlanta, Ga., broker, from Hesslein & Co., of New York for $35,000. The mill has been closed for several months. The purchaser is trying to secure an operator.

American Thread Co., Pawcatuck, Conn., will continue operation of its mill there, according to Andrew Bell, agent, following a downward adjustment of wages which was termed satisfactory to the employes in consideration of maintained operation.

O. B. Triplett, Jr., and **W. A. Langley,** Forest, Miss., are at head of a project to construct and operate a cotton mill in this vicinity.

Nashua (N. H.) **Mfg. Co.** sold all of its residence property at Nashua, including 94 dwellings and 16 building lots, at auction on May 23 for a total of $262,900.

Bromley Lace Co., Gouverneur, N. Y., a branch of the Philadelphia, Pa., concern, has resumed operations at Gouverneur after having been closed since 1928.

Rhyne-Houser Mfg. Co., Cherryville, N. C. (Friday, May 15) bought the **Wildan Mfg. Co.,** also of Cherryville, from the D. E. Rhyne estate and associates. It will be operated as plant No. 2 of the Rhyne-Houser Mfg. Co. Officers are: Dr. Forest Houser, president; David P. Dellinger, vice-president; A. H. Huss, secretary-treasurer; Howard Houser, assistant secretary-treasurer, and William McLoud, superintendent.

Falls Mills, Inc., High Falls, N. C., purchased several months ago by John M. Pressnell, H. O. Jones, Arthur Ross and E. M. Kearns, of Asheboro, N. C., is about to be started up on yarn. John M. Currie is general manager and superintendent.

National Weaving Co., Lowell, N. C., plans reorganization under Federal bankruptcy law. A. C. Lineberger, Jr., president, and H. M. Wade, Charlotte, N. C., have been appointed trustees in bankruptcy, but assets are greatly in excess of liabilities and company will doubtless continue.

Great Falls Mfg. Co., Rockingham, N. C., will be reopened as a rope factory this summer, Claude Gore, owner of the building, announces.

Old Great Falls Mill, Rockingham, N. C., two-story cloth building and dye house, the property of John W. Gore, and a number of looms which were stored in the dismantled building, were destroyed by fire early in May. Loss $15,000. The plant had been dismantled.

Firestone Cotton Mills, Akron, Ohio, have disposed of mill at Fall River, Mass., vacated for plant at Gastonia, N. C., to Crescent Machinery & Supply Co., Fall River, which will dispose of remaining equipment and machinery. Buildings will be placed on the market for lease.

Lorraine Mills, Inc., Sweetwater, Tenn., is scheduled to be ready for operation the middle of June. Seventy-five operatives will be employed.

Texas Textile Mills, Inc., Dallas, Tex., plan reorganization under Federal laws, to include the sale of company's mill at Love Field to other interests. Reorganized company will continue operations at mills at McKinney and Waco, Tex., where improvements will be made in buildings and equipment. Work is estimated to total about $100,000.

TEXTILE WORLD'S

Wool Digest

THE Ford Motor Co. has produced a sound slide film entitled "The Story of Wool and Mohair" available to educational societies, schools, clubs, etc. It shows how wool and mohair are processed and then links the wool industry to automobile manufacturing, demonstrating fabric-wear and color-testing devices used on automobile upholstery.

There are great possibilities in this publicizing, by an industry, of some of the materials it uses. It thereby increases public knowledge of its own product, and helps to strengthen the position of contributing industries. A sound supplier is always an asset to a purchaser.

Occasionally there is even a more direct benefit accruing. Large clothiers for example, whose principal material is wool, might help specifically to expand their own markets by publicity efforts for wool. This is an old argument, we realize. But we feel it is one which still invites action.—*Editor.*

Tariff Again!—Besse Asks for American Valuation

The wool textile industry on May 11 called upon the U. S. Tariff Commission to assess duties on imported wool fabrics on the basis of American selling prices instead of on foreign cost in order to protect it from increasing importations from Japan. The commission was also asked to investigate costs of producing blankets in Great Britain and the United States to determine whether or not the present rates afford adequate protection.

The brief was filed by Arthur Besse, president of N.A.W.M., who stated that the industry is alarmed at the rapid increase in importations of wool fabrics. He stated that hourly wool textile wages, as expressed in terms of the American dollar, are 10 times greater in this country than in Japan and 2½ times greater than in Great Britain. He asserted that this disparity in wage rates enables Great Britain and Japan to pay existing duties and still undersell domestic mills in the American market.

Domestic manufacturers are of the opinion that wage levels in Japan are so low that no duty based on prices in Japan can give proper protection. They, therefore, are asking for a change to the "American Valuation System" whereby the duty will be assessed as a percentage of the value here instead of the value in the country of origin. If this system were followed, identical goods produced in England and in Japan would be subject to the same amount of duty when imported in this country in contrast with the present system where the English importer pays a larger amount of duty than the Japanese importer because the British price upon which the percentage duty is based is considerably higher than the Japanese price.

Mr. Besse feels that British manufacturers and importers of British woolens into this country should join in advocating a change to the American Valuation basis as the British manufacturer, while paying lower wages than prevail in this country, pays much higher wages than the Japanese and hence is at a competitive disadvantage as compared with the Japanese. The brief gives much interesting statistical matter on comparative costs, hourly wage rates, etc.

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Labeling Comes to the Fore

The "all wool" and "part wool" labeling problem was brought to the fore during May in the talks of three important factors in the piece goods field. Arthur Besse, president N.A.W.M., in an address before the Advertising Women of New York, May 19, stressed education of retail sales people and gave the labeling standards which his association is supporting. These are that "100% wool" and "all wool" may be used only on fabrics made entirely of wool with 2% tolerance for foreign matter. The term "wool" may be applied to a fabric containing not less than 95% of wool by weight with 2% tolerance. The use of the word "wool" is prohibited on fabrics containing less than 95% of wool unless a guaranteed minimum percentage of wool content by weight is stated as legibly as the word wool. If more than 5% of a fabric's finished weight is due to a non-fibrous substance it shall be marked "weighted."

E. C. Morse, general director, Associated Wool Industries, stressed the increasing importance of labeling as fabrics of various fiber combinations come upon the market before the Middlesex County Consumer's Council at Boston, May 12. He described the work of his group in educating retail personnel on the subject of wool.

Mrs. Minnie Hall Carothers, publicity director of Associated Wool Industries, spoke over the radio May 20 on truth in advertising, stressing particularly the limitations mentioned above on the use of the word "wool" in labels and pointing out that the consumer, whom she was addressing, was the beneficiary of all these improved practices.

Unfilled Orders Decline

Unfilled orders in mill hands last month were estimated at 45,000,000 linear yards a decline of 6,000,000 yds. since the first of April. This trend is seasonal, with heavy deliveries against fall business exceeding the volume of new orders coming to hand. There is small filling in business in men's summer fabrics particularly tropical worsteds and white gabardines.

Offerings of spun rayon and wool mixtures are being made by a number of women's wear houses. Many of the samples seen have a small wool content and may not give satisfaction to the consumer unless sold frankly for what they are.

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Wool Tops Stronger

Wool tops strengthened in May but without gain for the month. Top exchange spots opened on May 1 at $1.04, sagged to $1.03 on May 8, recovered to $1.04 again May 15 and went on to $1.06 for May 22, having touched $1.07 during that week. The month closed at $1.04.

Volume of business on the exchange was the largest for some time. Foreign markets were easier in May, which, with the stronger domestic situation, is bringing tops again to the import point.

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More Snap to Wool Market

Signs of greater activity were noted in the Boston wool market the latter part of May, although the actual poundage turned over was not large. Prices were firm, but customers were used to a soft market and needed a little time to adjust themselves to new conditions before making purchases. Woolen wools were less active than other varieties, but the goods market for woolen fabrics is reported as favorable and this will work back to the mills. In general, the outlook is that there will be some price advances in the spots that have been particularly soft, and that the entire list will remain very firm.

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Prices and Statistics

Key wool prices of June 1 and a month ago, contrasted with the last two years:

	June 1 1936	May 1 1936	June 1 1935	June 1 1934
Fine and fine med. territory	$0.85	$0.81	$0.67	$0.80
Ohio 3/8s	.38	.37	.28½	.32½
Tops fine 64-66s	1.10	1.05	.94	1.11
average 3/8s	.98	.96	.77½	.94
high 1/4	.92	.89	.68	.86
Noils, fine	.70	.68	.54	.52
1/4	.55	.53	.42½	.41½
2-40s 60s wstd yarn	1.55	1.55	1.31¼	1.58½
8020 Serge	1.95	1.95	Not quoted	

Current statistics on wool consumption and mill activity follow, activity percentage based on single 40-hour shift, 5 days per week. March is a 4-week, April a 5-week period.

	March	April
Wool consumed, clean equiv.		
Apparel wool, lbs.	20,368,000	20,590,000
Carpet wool, lbs.	7,248,000	8,755,000
Machinery Activity		
Looms (50" wider)	100.9%	95.8%
Carpet looms	62.8%	62.8%
Combs	109.5%	105.8%
Worsted spindles	73.9%	74.3%
Woolen spindles	109. %	92.8%

Carpet Group Promotes Education

Consumer education looms large in the program of the Institute of Carpet Manufacturers of America. This body has just issued a brochure entitled "Selection of Wool Pile Carpets and Rugs as the Foundation of Correct Room Ensembles," which is No. 3 in the series sponsored by the Style Trend Advisory Council. Copies have been sent to 1,200 leading retailers.

The Institute has just completed a survey of style and color trends. Colonial and Chinese patterns are on the uptrend while Oriental designs have suffered a decrease. Texture designs, though much talked about and gaining, still amount to only a small percentage. Colors on the increase are blues, greens, and wood-tones in the cheaper ranges and greens and wood-tones in the better grades. Tans and taupes still lead in figured rugs but are declining in popularity. Eighteenth century designs are listed as first in importance in the drapery field.

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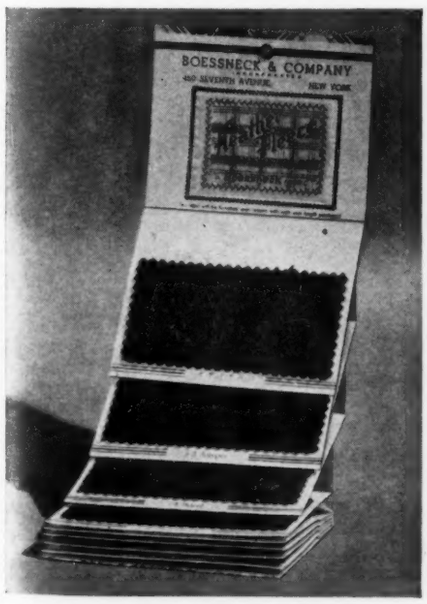
Wool Industry Briefs

Associated Wool Industries, Inc., has been awarded a certificate of recognition by the American Association of Trade Executives, Washington, D. C., in an annual competition for outstanding trade association activities.

The U.T.W. at a meeting in New York last month unanimously recommended that notice be served on the woolen and worsted industry calling for a 35-hour week and 20% wage advance.

Billing of yarn on regain basis will be discussed with an outerwear group by a committee appointed by the N.A.W.M. This committee includes Arthur Besse, Prof. Edgar H. Barker of Lowell Textile Institute, G. E. Hopkins of Committee DB, Ward A. France of Philadelphia Textile School and Edwin Wilkinson.



Novel sample book designed by Boessneck & Co., which opens like a book or draws into a vertical strip permitting all the samples to be seen at once

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Chatham Mfg. Co. last month revised its blanket list. Specification Airloom 72x84 is now 3¼ lbs. at $3.75 net or $5.95 at retail.

Warren Wright, formerly with William Whitman Co., has opened his own office at 261 Fifth Ave., New York, as a department of E. S. Freneau & Co., offering cotton specialties for industrial, sportswear and summer clothing.

Mixture yarns containing rabbit hair are said to be in better demand. No. 1 Angora has been selling for the worsted trade at $4.50. There has also been revival of interest in alpaca on the Boston market.

New York piece goods houses have been much interested in the pick-up and delivery service offered by certain railroads and steamship companies beginning May 25, without increase in freight rate.

The 1936 Fall Woolen Card, containing 48 colors, has been issued by Textile Color Card Association. Two groups of colors are stressed—"Pottery Tones" and "Paddock Colors."

Imperial Economic Committee of England has compiled a study of the wool business in 46 different countries during the 1928-1935 period.

The Fourth Wonder of Wool mentioned in Associated Wool Industries' film—that wool is Fire-Resistant—had definite corroboration recently in connection with Stroock camel hair fabrics. S. Stroock & Co. in decorating a booth had to prove their fabrics non-inflammable. The inspector put a blow torch to the camel's hair fabric, only to find that it would not flame. He thereupon o.k.'d it.

"Gentlemen Don't ——" is the title of a booklet just released by Associated Wool Industries for use by retailers for distribution to customers, dramatizing the advantages of tropical worsteds.

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Woolen Mill News

M. T. Stevens & Sons Co., Rockville, Conn., is building an addition to its dye house at the American Mill, 150x50 ft., and another to the patent room at the Minterburn mill, 40x48 ft.

Yale (Mich.) **Woolen Mills** is erecting one-story addition, 120x200 ft., for which general contract was let to the Austin Co., Cleveland, Ohio. It will be completed in July and will cost close to $75,000, with equipment.

Litchfield (Minn.) **Woolen Mills** plan rebuilding of portion of mill recently damaged by fire. Loss estimated close to $70,000.

National Worsted Mills, Jamestown, N. Y., is remodeling and modernizing three-story mill adjoining present plant at Falconer, N. Y., recently acquired from Ferncliff Mills. New unit will represent an investment of over $50,000.

G. Josephs & Co., Philadelphia, Pa., have taken over mill property on Brandywine River, Henry Clay, Wilmington, Del., formerly used by Hodgson Brothers, woolen manufacturers, and are remodeling for new plant. Philadelphia mill will be removed to new location, and Philadelphia plant will be discontinued.

Crescent Woolen Mills Co., Two Rivers, Wis., will soon begin superstructure for new two-story addition, about 15x35 ft. Sylvester Schmitt, Two Rivers, is architect.

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Wool Financial

James J. Regan Mfg. Co., Rockville, Conn., has received court approval for its plan to reorganize under Section 77B, at the same time keeping in operation. Assets were reported as $219,500 and liabilities $67,400.

B. Cohen & Son, Manchaug, Mass., interested in a woolen mill in this district, have taken over former No. 2 mill of the Lawton Spinning Co., Woonsocket, R. I., in liquidation, and will equip for new woolen mill. About 100 persons will be employed for initial production.

Colonial Weavers, Inc., Sutton, Mass., have been formed with capital of 100 shares, no par value, to operate a local mill. Roland J. Ross, Sutton, is president and treasurer.

Ohio Carpet Co., and a few key men, have moved from West Warren, Mass., where the plant was practically destroyed by fire during the flood period of last March, to Hartland, Me.

J. G. Ballard & Co., Malone, N. Y., will resume operations soon in woolen mill closed more than two years ago. Arrangements have been completed for a loan of $75,000 from the Reconstruction Finance Corp. More than 100 workers will be employed.

American Woolen Co., New York, declared a $1.00 dividend on arrears on preferred stock payable June 15 to record of June 2.

American Hair & Felt Co. reports net profit for the first quarter of 1936 of $44,302 on net sales of $1,912,411. This compares with profit of $166,038 on sales of $2,075,973 for similar quarter in 1935.

Geb & Garvan Yarn Co., Canal St., Seneca Falls, N. Y., was damaged by a blaze starting in one of the carding machines on the second floor.

Glenside Woolen Mills, Skaneateles Falls, N. Y., idle for three years, has resumed production with 75 workers on its payroll, manufacturing wool flannel.

John Williams Mfg. Co., Philadelphia, Pa.—John P. Hill and Francis W. Sullivan, Philadelphia, have been appointed receivers for this company.

Alsace Woolen Mills, Inc., has been chartered in Reading, Pa., to engage in the manufacture of woolen and worsted goods. George W. Manderbach, 530 Washington St., represents the firm.

Narragansett Woolen Mills, Wakefield, R. I., have filed a petition for court permission to reorganize under new Federal bankruptcy law.

TEXTILE WORLD'S

Rayon & Silk Digest

THE closing of one more gap in the statistical coverage of the textile industry is always a cause for rejoicing. There is particular reason for cheer in the news that coordination of the efforts of the National Rayon Weavers Association and the National Federation of Textiles is now making available industry-wide statistics showing the flow of rayon woven cloth from the mill into consuming outlets. The difficulty of securing a comprehensive picture of this movement has arisen, of course, from the fact that mills weaving rayon fall into two main groups, each with its own association. This problem was emphasized again and again during the code-hearings in Washington in the summer of 1933 when the jurisdictional fight between these two organizations added to the temperature of those already torrid days. Now it has all been solved—and by the simple little trick of cooperation. There still seems to be some meaning in that hackneyed term, doesn't there?—*Editor.*

Merger Clarifies Silk-Rayon Data

A new system of compiling statistics on rayon woven cloth production and distribution has been developed jointly by the National Rayon Weavers Association and the National Federation of Textiles, Inc., it was announced May 25 by the Weavers Association. The system was developed to eliminate the present unsatisfactory situation in which incomplete figures on rayon fabric production are issued by the respective organizations.

The new method offers a basis by which the two groups will coordinate the efforts of their statistical departments. Under the plan, the compilation of yards produced and yards invoiced or billed, which previously had been made weekly, will be made monthly by each organization and the totals will be exchanged. Each association then will develop complete monthly indices of production and invoices covering its respective division which indices will be available to the industry. It is estimated that 95% of the looms actively engaged in weaving rayon fabrics will be represented in the indices. Because of problems incident to starting the new service, the April indices were delayed.

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British Rayon Week Suggests Drive Here

Great Britain went rayon with a bang during "National Rayon Week, May 18-23," and the event was followed with an unusual degree of interest by the American rayon industry. Discussing the campaign, some rayon executives on this side of the Atlantic voiced the thought that the idea could be adopted with profit in this country. Indeed, some of those commenting hinted that action in such a direction was not far off. It is pointed out that several important figures in the American rayon merchandising field participated in the "Week" in London. Doubtless the reports these men give on their return will play a part in deciding whether a "National Rayon Week" might be considered here.

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Van Horn on Leave

Peter Van Horn, president of the National Federation of Textiles, Inc., has been granted a six months' leave of absence from that organization effective July 1, it was stated June 4 by the Federation. Mr. Van Horn's present contract expires June 30.

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Japan's Textile Tale

Comprehensive histories of the silk, rayon and cotton industries in Japan are among the highlight features of "Japan Today and Tomorrow," an elaborate 176-page volume which has just been published by the Osaka Mainichi, leading Japanese newspaper. Copies of the book which is profusely illustrated with art works in colors, have been distributed in this country by T. Ishiguro, director of the Japanese Government Raw Silk Intelligence Bureau. In the chapter "Rayon—new major industry of Japan" the development of synthetic yarn and fabric production is described in detail. Other chapters of importance are an 11-page section on raw silk, and a division on the cotton industry of Japan.

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Forrest Develops Machine for Cuprammonium Staple

Production of cuprammonium staple fiber in cotton, wool, and mohair sizes, is effected by a new type of equipment developed by Henry C. Forrest, president, Forrest, Inc., Gloucester City, N. J. Mr. Forrest states that his machine will spin as high as 20,000 filaments at one time, after which the large grouped filament hand passes continuously through the subsequent operations. An important advantage cited is the low cost of production. Five claims on the machine have been granted by the U. S. Patent Office and it is expected that the patent will be formally issued in September. Plans are now being formulated for a producing unit having a daily capacity of 10,000 lb.

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Staple Prices Cut

A reduction in the price of viscose process staple fiber was announced by the duPont Rayon Co., effective June 1. The revision brings all deniers and lengths of bright staple down to 28c., dull staple 2c. more. The reduction which marks the first change in rayon staple prices in two years, was made possible by lower production costs and increased volume. duPont prices follow:

STAPLE PRICES (bright)*

Denier	Price
5½	28c
3	28c
1½	28c

*Dull staple 2c per lb. more on all deniers.

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Rayon Cloth Sales Rise

The first data under the new system, which was issued by the National Rayon Weavers' Association, May 28, showed an increase of nearly 41% in rayon broad woven cloth deliveries in April, 1936, over April, 1935. The monthly index figures, based on 1934 as 100, follow:

	April, 1935	April, 1936
Taffetas, Twills, Linings and Other Staples	137	216
Dress Goods, Novelties, and Other Fancies	74	92
Total	96	135

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Current Rayon Data

Key rayon prices and statistics follow:

Prices:	June 1 1936	May 1 1936	June 1 1935	June 1 1934
Viscose process				
75 denier (18-30 fils.)	$0.90	$0.90	$0.85	$.90
100 denier (40 fils.)	.79	.79	.74	.75
150 denier (40 fils.)	.57	.57	.55	.55
Acetate process				
150 denier	.60	.60	.60	.60
Cupra. process				
150 denier (112 fils.)	.65	.65	.60	.60

Statistics**	Indices of Deliveries* 1936	1935
May	428	417
April	433	274
March	422	295

*Rayon Organon.

**Exclusive of Acetate. Daily average 1923-25 = 100.

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Current Silk Data

Key silk prices and statistics follow:

Prices	June 1 1936	May 1 1936	June 1 1935	June 1 1934
Crack XX 13/15 white 78%	$1.45½	$1.71½	$1.39	$1.21
Tram, 5thd Japan 85%	2.16	2.33	2.22½	2.12½
Tram Crack XX 7thd 78%	2.08	2.25	1.95	1.92½
60s-2, spun silk	2.85	2.85	2.75	2.95

Statistics	Imports	Approx. Deliveries	Stocks at Warehouses
Mar., 1936	25,009	36,000	53,689
Apr., 1936	26,973	34,564	46,098
May, 1936	26,055	32,087	40,066

Low Cost of Rayon Plant Aids Japan

The remarkable rise of Japan to second place in world rayon production within a few years has occasioned much speculation as to the real reasons for such growth. According to TEXTILE WORLD's Tokio correspondent, this meteoric jump is due largely to a factor which so far has received little attention—namely, the low cost of equipping a rayon plant in Japan. The history of the development of Japan's rayon machinery industry is novel in several respects. The yarn manufacturers were so insistent on keeping their methods secret that they would buy only parts of machines from equipment firms, these parts being assembled by trusted employes of the yarn firms. This policy kept machinery manufacturers in ignorance for a long time of the use to which their parts were put; it also had the result of developing an abnormally large group of rayon machine makers and the competition prevailing among such firms kept equipment prices down.

As a result, the cost of equipping a rayon plant in Japan today is abnormally low. For instance a complete rayon spinning plant in Japan costs only 25% of what it would cost in Germany, which would imply a considerably greater differential between Japan and the U. S. "Thus" our correspondent writes. "it is notable that such cheapness of the initial cost of the plant has served to facilitate the great rise of the rayon industry in Japan."

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Silk Marches On

"Business as usual" was the keynote of the International Silk Guild this month, while the silk market generally was awaiting word from Japan regarding plans to raise a 2,500,000 yen promotion fund in 1937. Guild officials emphasized that the question of the proposed new fund had no relation whatever to the organization's immediate program. The 1936 Silk Parade will be held in the Fall, as scheduled and plans are now being made for the event. Preliminary response from retailers indicated that the stores have given the Parade a permanent place in their annual schedules and are planning enthusiastic support for this year's event.

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Silk in New Doldrums

The curtailment trend in hosiery production was chiefly responsible for the weak condition prevailing in raw silk through May. Prices fluctuated considerably during the month, and on May 25, they averaged 8c below those of four weeks previous. A feeling of discouragement was manifest among importers. This mood was only partly justified however, as the importers admitted they were having a fair spot demand from weavers. The stock situation in New York hindered spot buying because of the odd point that 13/15s, the chief hosiery numbers, were plentiful and found no takers, while the 20/22s, woven fabric numbers were scarce, and many weavers wanted them.

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Rayon Yarn Active Despite Hot Spell

The seasonal slackening of demand for rayon yarns was less evident than usual at the turn of the month. Producers reported active buying through May. Mills were busy on satins and placed substantial contracts for 100/40 bright viscose yarn. With the coming of warm weather, interest in the 100/60 for making rayon taffetas waned and producers of rayon rather expected a further falling-off of this business.

However, a few mills have gone into production on fall lines and are covering on requirements for making twills, crepes, etc. The call for acetate yarns improved somewhat.

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Rayon & Silk Mill News

M. Salzberg Sons Co., Putnam, Conn., is moving looms to its auxiliary plant at Central Falls, R. I., but may continue spinning and throwing of rayon yarns at Putnam.

Viscose Co., New York, N. Y., plans new mill at Nitro, W. Va., for production of rayon yarns, comprising a large one and multi-story unit, estimated to cost close to $300,000, with equipment.

Stone Silk Mills, Ogdensburg, N. Y., plans construction of a silk dyeing plant in the near future.

American Enka Corp., Enka, N. C., has let general contract to Merchants Construction Co., 290 Biltmore Ave., Asheville, N. C., for new one-story addition. It will cost close to $50,000.

Dutchess Fabrics Corp., Statesville, N. C., is constructing an addition to the plant, measuring 80x50 ft.

Sunset Silk Co., Berwick, Pa., plans rebuilding of portion of mill, occupied under lease, recently damaged by fire.

D. & G. Silk Co., Riverside, Pa., recently organized by James Gable, Riverside, and associates, has leased local plant of Teson Silk Mills, Inc., owned by Joseph Wolfe, and will occupy for new mill.

Roanoke (Va.) **Weaving Co.,** under construction at Vinton, Va., will be completed by Sept. 1. The first unit, 240x 250 ft., costing $125,000, will employ 350.

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Rayon & Silk Financial

Atmore (Ala.) **Silk Mills** have reopened for operation. Herman A. Rausch, the former manager, has been renamed.

Cheney Bros., Manchester, Conn., has been granted a continuance until Oct. 15 for filing its plan of reorganization.

Perfect Spinning Mills, Inc., Putnam, Conn., has been liquidated through Sheriff's sale of equipment to Samson Nathanson, Providence, R. I., to satisfy a chattel mortgage of $15,000 held by him.

National Silk Co., South Coventry, Conn., suffered plant damage estimated at $10,000 when a mill pond dam broke May 9.

Walcott & Campbell Spinning Mill, Gulfport, Miss., recently acquired by interests, headed by John B. Lord and associates, at price of $110,000, will be remodeled and equipped as a silk mill, according to present plans of purchasers. Plant has been idle for several years.

Associated Rayon Corp., New York, reports net profit of $36,464 for 1935 against net loss of $54,316 in preceeding year.

National Fabrics Corp., New York, N. Y., recently organized under Delaware laws with capital of $2,000,000, as a subsidiary of E. Gerli & Co., Inc., 49 East 34th St., New York, will take over and consolidate the **Allentown** (Pa.) **Silk Co., New Bedford** (Mass.) **Silk Mills, National Weaving Co.,** and **Buena Vista** (Va.) **Throwing Co.,** which will be operated under the single management in future. Joseph Gerli is chairman of board, and Paolino Gerli, president.

C. H. Gingher, Burlington, N. C., formerly identified with Burlington Mills Co., is at head of project to establish a new rayon weaving mill in that vicinity. A company will be organized to carry out development, with Mr. Gingher as head.

Roanoke Mills Co., Roanoke Rapids, N. C., reports net profit for 1935 of $1,976 against net loss of $57,556 in 1934.

Sunset Silk Co., Berwick, Pa., was destroyed by fire on May 9 with a loss of $25,000 or more. Plans for rebuilding are under consideration.

Pfeiffer Silk Corp., East Stroudsburg, Pa. —Receivers are planning early sale of branch mill at Scranton, Pa., operated under name of West Park Throwing Co., located in Lincoln Heights district.

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The Golden Rule Store of St. Paul, Minnesota, has recently opened a Crown Tested Quality Rayon fabric section. This is a large department and occupies important space in the piece goods division. The merchandise is shown on tables on which are signs indicating that the fabrics are Crown Rayon.

TEXTILE WORLD'S

Knit Goods Digest

ALTHOUGH the section of the women's seamless hosiery industry willing to sign on the dotted line to maintain code hours and wages increased from 22% of the productive capacity a year ago to 66% just last month, the cold fact remains that it proved impossible to secure the announced objective of 85% compliance. Consequently the 66% had to be released from their agreements.

What bothers us about this situation is this: We are confident that all the other 34% of the manufacturers do not want to chisel on hours and wages. Some do, of course, but there must be other reasons for unwillingness to sign.

As Earl Constantine has said, the failure to put the voluntary agreement into effect does not herald the collapse of hour and wage standards. The industry has done a good job, on its own, for more than a year, and there is no reason to expect a sudden change now. Nevertheless, we still feel it is helpful in a case like this for manufacturers to be willing to stand out and be counted. Those unwilling to do so must accept the responsibility for any uncertainty or weakness developing from inability to call the roll and see who is present and who is absent.—*Editor.*

Low-Twist Hosiery Carries Crepe Label

Claiming that the prevalence of inferior merchandise is seriously threatening the present revival of crepe high-twist full-fashioned hosiery, leading manufacturers this month emphasized the need for action to curb this evil. They suggested the establishing of standards in the manufacture of this type of hosiery as the surest way to end consumer misunderstanding. It was complained that the term "high twist" is so loosely used that it is no longer reliable.

It is understood that the National Association of Hosiery Manufacturers has taken up the question through a committee with a view to developing a method of specifying minimum twist requirements for crepe hosiery. Officers of the association declined to comment on the matter, asserting that any statement at this time would be premature.

The revival of the high twist, or grenadine type of hosiery, which was so popular three years ago, has become increasingly important in recent months. While this business remains only a small part of the total full-fashioned, it has been one of the most profitable due to active merchandising and keen consumer interest. However, the advance of spring has brought into the field a large quantity of low-twist hosiery which is being promoted as high-twist, resulting, it is asserted, in prejudicing the consumer against the real high-twist type. So serious has this problem become that some hosiery firms have abandoned the use of "crepe" or the other accepted terms in their promotion and are inventing new terms. The new terms stress the three chief selling points of crepes as follows: (1) dull appearance, (2) increased snag resistance, (3) increased elasticity permitting longer wear.

Since the inferior merchandise is cheaper to make price-cutting has developed with the result that market quotations on even the better quality types are in uncerain state. Two months ago the best mills had no difficulty in getting $9.00 per doz. for high-twist. This price for stockings with a 60 to 70 twist was profitable. Then mills sold as high-twist stockings with twist as low as 10, pricing them at $6.00 which has weakened the market. At present, $7.25 is considered a fair price for a good quality high-twist.

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Hosiery Styled While You Wait!

The idea of styling hosiery to order on knitting machines installed in the salesrooms and operated in view of the customer has been adopted at the New York office of May Hosiery Mills of Nashville, Tenn. The firm has erected three knitting and two ribbing machines in its office at 346 Broadway. Officials stated that the idea has greatly stimulated demand for the firm's line.

Poster for bathing-suit promotion

Underwear Active

The warm weather prevailing last month stimulated underwear interest, particularly at the lightweight end. Manufacturers of ribbed lines hoped that the unusually early summer would mean early clearance of retail stocks which in turn would stimulate fall merchandise. The call for summer garments centered on high fashion lines with prices holding steady. Firms which opened their ribbed lines for fall reported fairly good response. Considerable advance business was placed; prices in most cases were unchanged from last season.

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April Hosiery Sales Equal Output

The hosiery statistics for April, 1936, presented in the current Statistical Bulletin issued by the National Association of Hosiery Manufacturers, show that the volume of demand continues well above a year ago. Production has been kept within bounds and it is not expected that stocks will become burdensome within the next few months.

Total shipments of all types of hosiery during April, 1936, amounted to 10,176,031 doz. pr., which was almost 11% above shipments in April, a year ago. Total production of all types of hosiery in April, 1936, amounted to 10,200,804 dz. pr. There was a substantial seasonal decline in stocks of anklets in April of this year, which was largely offset by seasonal increases in stocks of ribbed and woolen goods.

Total stocks of all type of hosiery at the end of April, 1936, were 19,186,038 doz. pr. as compared with 19,366,473 doz. pr. one year previous. The following table shows shipment trends:

Type of Hosiery	April 1936	April 1935	First Four Months 1936	First Four Months 1935
Total, all types	10,176,031	9,179,793	37,745,318	36,267, 52
Women's full-fashioned	3,065,759	2,924,958	10,985,802	10,946,526
Women's seamless, excl. wool	1,140,573	903,884	3,954,793	3,709,475
Men's half hose, excl. wool	2,879,889	2,631,225	10,398,401	10,040,967
Children's and infants' hosiery*	417,040	436,599	1,998,431	1,954,874
Anklets	2,075,546	1,754,233	7,748,286	7,066,694
Cotton bundle goods	279,899	255,233	1,183,469	1,090,618
Ribbed goods	178,282	143,731	983,039	961,667
Woolen goods†	139,043	129,930	493,097	496,93

*Boys' and infants' socks, children's ½ flat and ¼, boys' golf hose.
†Women's and men's seamless wool, men's golf hose, woollen bundle goods.

Seamless Harmony Plan Abandoned

Hope for eventual harmony in the women's seamless hosiery division was still being expressed this month depite the failure of the agreement project which was announced May 20 by Earl Constantine, managing director of the National Association of Hosiery Manufacturers. Mr. Constantine stated that the plan was abandoned by the committee in charge because only 66% out of a necesary 85% had signed up. It is understood that the unwilling remainder includes several important firms.

One optimistic angle of the situation was that the 66% approval of the agreement, while insufficient for present purposes, yet marked a decided advance over the response made by the mills to the previous proposal immediately after dissolution of the NRA. At that time only 22% signed up.

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New Hosiery Pact Being Negotiated

Negotiations between the Full-Fashioned Hosiery Manufacturers of America and the American Federation of Hosiery Workers on a new labor contract for Sept. 1 began at the Bellevue-Stratford Hotel, Philadelphia, May 13; the meeting on that date marked the start of various conferences. Neither the union leaders nor the representatives of the manufacturers would comment on the status of the negotiations.

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Curtail! Is Call to Hosiery Mills

Aiming to give further impetus to the present moderate trend toward curtailment which has become evident in certain hosiery manufacturing districts, the National Association of Hosiery Manufacturers on May 13 issued a strong call for curtailment throughout the full-fashioned industry. The statement appeared in the Association *News-Letter;* it emphasized that to delay curtailment until July or August, which is the usual practice, would permit an unhealthy piling up of stocks.

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Industry Briefs

Plan Hosiery Survey—The proposed hosiery survey was the topic of a meeting of the directors of the National Association of Hosiery Manufacturers in New York June 10-11.

Ringless Trial Off Again!—The much-postponed ringless hosiery trial has been postponed again, this time until Sept. 28, when it is scheduled to come up in the Federal Court, Philadelphia.

Fashion in Half-hose—Two new trends were noted this month in men's half-hosiery: first, buying offices were increasing their demand for pastel shades; and second, the vogue for the dark shirt has prompted certain knitters to dye their hose the same colors. This latter idea which is an application to men's wear of the ensemble method is proving effective in stimulating sales.

Annual golf tournament of the Chicago Yarn Men's Circle will be held on Wednesday, June 24 at Bob O'Link Country Club, Highland Park, Illinois. The following are the officers: George T. Hutchinson, president; Fred W. Frank, secretary; and Wm. Yates, treasurer.

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Knitting Mill News

Blair L. Klein, Defuniak Springs, Fla., has taken over local building formerly occupied by Chrysler Co., and will equip for a new knitting mill on full-fashioned hose. Stephen C. Weiss will be an official of company.

Athens (Ga.) **Hosiery Co.,** an interest of Rodgers Hosiery Co., Inc., Germantown, Pa., has awarded general contract to Daniel Construction Co., Anderson, S. C., for new local hosiery mill, recently noted. It is expected to be completed late in summer; cost about $200,000. Lockwood Greene Engineers, Inc., New York, N. Y., are architects and engineers.

Wayne Knitting Mills, Inc., Fort Wayne, Ind., have approved plans for expansion at plant to cost close to $100,000, including installation of new full-fashioned knitting machinery and auxiliary equipment, on which work will be placed under way at once.

Warner Knitting Co., Clayton, N. Y., has completed installation of four new knitting machines.

Fonda (N. Y.) **Glove Lining Co.** has awarded general contract to Morrell-Vrooman, Inc., North Main St., Gloversville, N. Y., for new one-story addition for warehouse service. Cost about $40,000, with equipment.

Standard Hosiery Mills, Burlington, N. C., has completed the installation of five additional full-fashioned knitting machines and auxiliary equipment.

Rufus D. Wilson, Inc., Burlington, N. C., recently organized with capital of $150,000, has superstructure under way for one-story knitting mill, to be equipped for capacity of about 1,200 doz. women's full-fashioned hose per week.

Whitener Mills, Inc., Hickory, N. C., newly organized hosiery mill, is being housed in the old Heavener Glove Co. building, on Brookford Road. Company is capitalized at $50,000 and 65 machines constitute initial equipment on men's and women's hose.

Silver-Knit Hosiery Mills, High Point, N. C., will make alterations to their plant at Russell and Hamilton streets; contract is awarded to Wilson & Keziah, High Point; cost around $3,000.

Wrenn Hosiery Co., Thomasville, N. C., is constructing an additional unit just outside the city limits of Thomasville, on Prospect Road.

Waldensian Hosiery Mills, Pine Burr unit, Valdese, N. C., the full-fashioned branch of the company, recently built an addition of 80x50 ft., and installed eight new full-fashioned knitting machines, increasing production by about 50%.

Bell Knitting Corp., Lebanon and Allentown, Pa., has consolidated these two plants in a new building at Sayre, Pa. New machines have been installed bringing the total to 400, and a modern dyeing plant set up. Product is knit fabric, underwear, polo shirts, and other specialties. Jack Turner is superintendent of knitting and dyeing and also buyer. Sanford T. Kaye is president. The company was lately incorporated and now employs 1,200.

Niota (Tenn.) **Mills, Inc.,** recently formed with capital of $50,000, are completing one-story mill, 80x120 ft., to be equipped for production of women's full-fashioned hosiery. About 40 operatives will be employed.

Portage (Wis.) **Hosiery Co.** will take bids early in June for new two-story and basement mill addition, 60x118 ft. Cost close to $50,000, with equipment.

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Knitting Financial

Marshall Hosiery Mills, Benton, Ky., has been capitalized at $25,000. Incorporators: R. E. Foust, Duncan Malin and Mary Malin.

Ballis Knitting Mills, Inc., Warren, Mass., recently organized with capital of 100 shares, no par value, plans operation of local mill. Joseph Ballis is president, and William McWhirter, Main St., West Warren, Mass., treasurer and representative.

Eclipse Knitting Mills, Newark, N. J., have leased portion of Building No. 39 at former plant of Clark Thread Co., East Newark, N. J., totaling about 12,000 sq.ft. floor space, and will remove present plant at 579 South Eleventh St., Newark, to that location. Facilities will be provided for about 125 operatives.

Bretton Knitwear, Inc., West New York, N. J., has been formed with capital of 100 shares, no par value, to operate a local knitting mill. Company is represented by Jay M. Levenson, 443 16th St., West New York.

Utica (N. Y.) **Knitting Co.** reports net profit for 1935 of $118,154, compared with $110,072 in 1934.

Miami, Fla.—C. L. Okey, president of the Okey Hosiery Co., Charlotte, N. C., has announced that his company will soon complete negotiations for the erection of a mill and a small industrial community in Miami.

R. T. Johnson Hosiery Co., Inc., was granted a charter May 1, to manufacture, and sell hosiery in Burlington, N. C., under authorized capital of $50,000.

Groff-Bragg Textile Corp., Toledo, Ohio, has purchased former plant of **Lenawee Textiles, Inc.,** Adrian, Mich., now vacant, and will remove present plant from Toledo Factories Building to new location.

Columbia (Pa.) **Chamber of Commerce** states that a knitting mill from Brooklyn, N. Y., will move into a local industrial building during June.

Grayline Hosiery Co., Eddington, Pa., is planning to open a branch at Chambersburg, Pa. Twenty 42-gauge machines will be set up there.

Shapeleigh Hosiery Mills, Philadelphia, have been acquired by Irving Birnbaum and will be continued under the name Anglo Tex Hosiery Mill.

Ajax Hosiery Mills, Phoenixville, Pa., will discontinue operations here owing to labor difficulties. The machinery will be used by the company at another location.

Decatur (Tenn.) **Hosiery Mills,** capitalized at $25,000, with new plant and dye house, is starting up on anklets with production of 600 doz. pairs daily.

TEXTILE WORLD'S

Processing Digest

AS reported elsewhere in this issue, textile men who attended the conference held last month under the auspices of the United States Institute for Textile Research agreed unanimously that research on the drying of textiles is called for and that the Institute should undertake such an investigation. It appears certain, therefore, that research on this problem will be carried out.

How quickly the project gets under way and how thorough an investigation is made depend upon the financial support given by the industry. Some companies have already expressed their readiness to contribute. We feel certain that no concern which is engaged in textile processing can afford to pass up this chance to learn at the earliest opportunity those conditions at which drying of the various fibers can be carried out most efficiently and with the minimum amount of damage to the fiber.—*Editor.*

Textile Research

As a result of a meeting of the Directors of the Textile Foundation held in Washington, April 15, a grant of $12,500 has been made to the American Association of Textile Chemists & Colorists for the continuation of research now under way. The projects to be covered are investigations of vat printing pastes; effect of oxidizing and reducing agents on wool; chemistry of wool fibers; quantitative determination of fibers in mixtures; and the determination of oil, soap, and other extraneous matter in wool and in various stages of the wool process. The Chemical Foundation has increased its appropriation to $3,000, and Eavenson & Levering has renewed its grant of $2,400. The Textile Foundation and the Throwsters Institute are contributing $2,500 each for a study of the creping of rayon. The total research budget of the Association, including funds for the study of cotton mercerizing, is well over $20,000.

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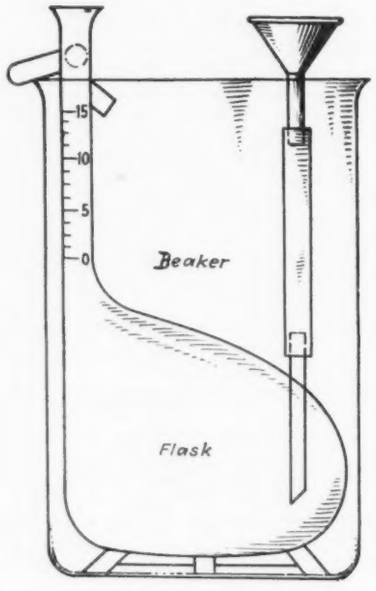
Fatty Acid Content of Soaps and Fats

A new method for determining the total fatty acid content of soaps and fats, is described by Woburn Degreasing Co., Harrison, N. J., in its recently published textile bulletin No. 101. The test is conducted by means of the modified Luering burette, called the Woburn fatty acid burette, shown in the accompanying illustration. The procedure in brief is as follows:

Weigh accurately 400 grams of the solution containing a maximum of 2.5% actual soap (of more concentrated soap solutions use correspondingly less and dilute with hot water) into the flask, add a few pieces of unglazed porcelain boiling stone, and 10 c.c. conc. HCl. Bring to a boil on a hot plate and heat until the soap is split. Remove the flask from the hot plate and add cautiously through the thistle tube enough hot water to bring the lower layer of the fatty acid to the zero mark of the burette. Place the flask in the large Pyrex jar containing boiling water, the burette being immersed as far as possible. When the contents of the flask and burette have reached the temperature of the boiling water in the jar, which, meanwhile has been placed on the hot plate, readings are taken at the upper and lower levels of the fatty acid in the burette.

The following example shows the method of calculating results: If the reading taken on the burette is 11.9 c.c. and the specific gravity of the fatty acid from which the soap was made is 0.839 (at 99° C.) $11.9 \times 0.839 = 9.984$ grams fatty acid. To convert the fatty acid into a sodium soap, multiply by 1.078; for a potassium soap, multiply by 1.135. Assuming that a sodium soap was analyzed, we multiply $9.984 \times 1.078 = 10.76$ grams soap in the 400-gram solution used for analysis, and $10.76 \div 400 = 2.69\%$ actual soap in the solution.



Flameproofing Process for Textile Fabrics

A new process for flameproofing textiles has been developed recently by Sleepsafe Industries, Inc., 101 Park Ave., New York, in cooperation with Grasselli Chemical Co. It is stated that fabrics treated by this method will not ignite under any circumstances and will not glow after the flame is removed. United States Finishing Co. and Aspinook Co. have been licensed to use the process. This method of flameproofing has been in use for several months for treating mattresses, but has just been adapted to the processing of fabrics.

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Oxidation of Wool by Hydrogen Peroxide

The effect of hydrogen peroxide on wool and a method of testing for peroxide-bleached wool are discussed by Arthur L. Smith and Milton Harris, in the April issue of the **Journal of Research.** These investigators report that wool which has been oxidized by hydrogen peroxide solutions has a lower cystine content and a higher alkali solubility than untreated wool. The extent to which the wool is oxidized bears a functional relationship to the decrease in cystine content and to the increase in alkali solubility. The extent to which wool is oxidized by hydrogen peroxide solutions depends on the concentration, temperature, and pH of the solutions and on the duration of treatment.

For distinguishing between untreated wool and hydrogen peroxide bleached wool, the lead acetate test is suitable. This is carried out by boiling samples of the wool for 40 min. in a 0.05% solution of lead acetate solution at pH 5, rinsing, drying, and measuring the degree of darkening.

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Wool Lubricant

A new lubricant for wool stock has been announced recently by Carbide & Carbon Chemicals Corp., 30 East 42d St., New York. This product, known as Carbide Lubricant OLV, is described as being completely soluble in water, non-oxidizing, and stable to acid carbonizing solutions. Advantages cited include the following: Lubricant OLV possesses the proper fiber-softening and lubricating properties for satisfactory carding, combing, and spinning; combed top immediately assumes the draft-resistance which is usually obtained by the use of excess lubricant or by the ageing of the top; vigoreaux-printed and dyed stock spins in a normal manner; the ability of this material to produce greater cohesion between fibers permits the use of less twist than usual during the drawing operations, with a corresponding increase in production; stock can be bleached and dyed without scouring; lubricated stock, yarn, or cloth can be stored for extended periods of time without the formation of water-insoluble, viscous gums and without development of odor or color; stock processes with a minimum of wildness and waste, and is whiter and cleaner, resembling backwashed stock; knitting yarns are white, odorless, and lofty without the tendency to stain wrapping paper.

Lubricant OLV is applied to stock without dilution with water. For the

Bradford worsted system of manufacture, 2 to 3% is sufficient. The material is applied by the usual methods and in the usual quantities. On the woolen system, for the coarser yarns such as carpet yarns, 6 to 8% is suggested. For the finer woolen yarns, 8 to 12% is applied.

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New Dyes

E. I. duPont de Nemours & Co., Inc., announces the following new products: Celanthrene Fast Violet BL, an acetate dye producing brilliant bluish shades; Acetamine Rubine B, an acetate dye producing dischargeable red shades.

General Dyestuff Corp. announces the following new products: Supramine Red GL, an acid dye producing dischargeable yellowish red shades; Supramine Pure Blue BL, an acid dye, producing bright blue shades of good general fastness; Celliton Fast Brown BT, an acetate dye producing brown shades of excellent fastness to light; and Celliton Fast Navy Blue BF, an acetate dye producing clearer shades than Celliton Navy Blue B.

Sandoz Chemical Works, Inc., announces the following new products: Visco Blue RS, a level-dyeing direct color giving bright blue shades on cotton and rayon; and Diazamines Orange 3RS, Brown RB, Brown 3RA, and Brown 6RA, a series of developed dyes producing dischargeable shades on cotton and rayon.

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Fashion Group Discusses New Finishes

Textile processes in their relation to the retailer and the consumer were discussed at a meeting of the Fabric Section of the Fashion Group, held May 19 at Town Hall, New York. The meeting was in charge of Althea Lilian Rickert, chairman of the section. Among the chief developments discussed were anti-creasing, Sanforizing, Bellmanizing, Neva-Wet and Aqua-Sec, which were explained respectively by Frederick Atherton, John C. Turrell, John Thomas Miller, S. H. Lefkowitz, and Donald Martin. The point was stressed at the meeting that textile processing is destined to play an increasingly important part in retail merchandising.

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China Grove Buys Interest in Southern Mercerizing

China Grove (N. C.) Cotton Mills, which recently acquired the interest of F. P. Bacon, founder and president of Southern Mercerizing Co., in that company, is renovating and enlarging the plant to accommodate a Butterworth warp mercerizing range, the first set up in the South in over five years. The village also is being put in first-class condition.

Formerly, Southern Mercerizing Co. handled only fine-count single yarns, capacity being about 1,500,000 lb. annually. Installation of this warp range will increase production to 5,000,000 lb. Yarn will be sold direct by the company's own salesmen.

The history of Southern Mercerizing Co. began in 1909 when Mr. Bacon bought an 8-pole Smith-Drum skein-mercerizing machine, the first in the South, and set it up in a small building in the suburbs of Tryon. In 1916, this machine was moved to larger quarters and a second 8-pole unit added. The present plant was constructed in 1920, and a new 24-pole machine installed. In 1922, W. C. Ward, a Chattanooga yarn broker, entered the picture by purchasing half interest in the concern. About this time, the two small mercerizing machines were replaced with two more 24-pole devices, bringing the total to three 24-pole machines.

Capital investment of Southern Mercerizing Co. has been increased from $100,000 to $200,000. Officers are John H. Rutledge, China Grove, president, W. C. Ward, Tryon, vice-president and treasurer, and Douglas S. Bloise, Tryon, secretary. A. L. Brown, vice-president and general manager, Cannon Mills Co., Kannapolis, N. C.; and C. J. Beaver, assistant secretary. China Grove Cotton Mills, are directors, in addition to the officers listed herewith.

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Association Notes

At a meeting of the New York Section, American Association of Textile Chemists & Colorists, held May 22, George L. Baxter, of the New York office of Bradford Dyeing Association, was elected chairman, succeeding Ephraim Freedman, of R. H. Macy & Co. Louis Zissman, Gotham Silk Hosiery Co., was elected vice-chairman. Officers re-elected are Patrick L. Kennedy, E. I. duPont de Nemours & Co., secretary; and John Sokolinski, Arabol Mfg. Co., chairman N. Y. section. Ephraim Freedman is chairman of the section committee. At the technical session, Dr. Richard Feibelmann demonstrated the Hydrosulphometer for determining the reducing value of sodium hydrosulphite, and the Vatometer for testing vat dyeing solutions.

Members of the Sulphonated Oil Manufacturers Association were joined by their friends at an outing of the association held at Buckwood Inn, Shawnee-on-the-Delaware, Pa., June 3 and 4. Activities included a golf tournament, dinner, and awarding of prizes for members.

Merchandising and promotion plans of the All-Guard Guaranteed washable fabrics program were discussed at a conference of retail executives held last month, in New York, by the National Retail Dry Goods Association.

To relieve congestion in the market, the Printers Guild, Paterson, N. J., announced, May 12, that all silk printers in the city had decided to close for a week, from May 13 to May 20. Similar action was taken by print shops in other parts of the New York metropolitan area.

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Processing Plant News

Elmvale Dye Works, Inc., Pittsfield, Mass., has leased portion of the idle Russell Mill property, totaling about 12,000 sq.ft. floor space, and will equip for expansion. Present mill will continue as heretofore.

New-Ite Bleachery, Inc., Philadelphia, Pa., recently organized, has leased a group of four buildings, one and two-story, at Huntingdon and American Sts., and will occupy for new bleach and dye works.

Fairforest Finishing Co., Clevedale, S. C., will install $15,000 worth of machinery following stockholders' meeting at which an increase in capital from $500,000 to $1,000,000 was voted.

Hartsville (S. C.) Print & Dye Works, now being reorganized under Section 77-B of the bankruptcy act, has been authorized to lease a sixty-foot Hoey Mfg. Co. mercerizing frame, which will add a substantial yearly profit to the mill's operation. The installation will permit the company to accept business previously turned down for lack of equipment, and will result in the balancing of production in the dye house.

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Processing Financial

Holder Dye Works, Inc., Paterson, N. J.—Following recent filing of involuntary petition in bankruptcy, schedules have been submitted to the Court showing liabilities of $29,140, and assets of $5,483. John Grimshaw, Jr., is referee in bankruptcy.

Jedco Dye Works, Paterson, N. J., have been formed with capital of 1,000 shares, no par value, to operate a local dye and bleach works. New company is represented by Meyer W. Stein, 64 Hamilton St., Paterson, attorney.

Rochelle Park (N. J.) Velvet Co is looking for a southern location according to H. A. Hess, an executive. The plant is affiliated with United Piece Dye Works and dyes and finishes velvets and novelty silks.

Marvelous Dyeing & Finishing Co. Inc., New York, N. Y., has been organized with capital of $10,000, to operate a mill in this vicinity. Company is represented by Armin H. Mittlemann, 22 East Fortieth St., New York.

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TEXTILE WORLD'S

Engineering Digest

THE Cotton Manufacturers Association of North Carolina deserves congratulations for its sponsorship of a State-wide safety contest in the cotton textile industry, July 1–Oct. 31, in collaboration with the North Carolina Industrial Commission. This general type of cooperation between industry and State has real possibilities, and in this case it is directed toward a particularly worth-while objective. Finally, the personnel of the contest committee is of a caliber which insures the success of the drive.

—*Editor.*

Improved Lighting In North Carolina Mills

Progress is being made in providing improved lighting for textile plants, according to Duke Power Co., Charlotte, N. C., in describing new installations in North Carolina.

Hudson Silk Hosiery Co., Charlotte, has constructed a windowless plant, artificial lighting providing the only illumination. Some 90 Holoplane lighting units provide 20 foot-candles at the needle points on the machines.

The Chadwick-Hoskins Co. plant, between Charlotte and Paw Creek, will soon have one of the outstanding lighting installations in the South, with particular reference to the rayon weave room, the winding and warper room, and the cloth room. Contract recently was awarded to R. H. Bouligny, Inc. The weave and cloth rooms will be illuminated with 70 units of the Glassteel diffuser type, each containing one 400-watt mercury-vapor lamp and three 150-watt incandescent lamps. The winding and warper rooms will contain fourteen Glassteel diffusers, each fitted with 500-watt lamps. This system will provide from 25 to 40 foot-candles on the working areas.

Cannon Mills Co., Kannapolis, has equipped its office with 37 totally indirect lighting fixtures using one 400-watt high-intensity mercury lamp and four 200-watt incandescent lamps in each fixture. A white light conducive to excellent seeing conditions is produced.

Indera Mills Co., Winston-Salem, has in its office six combination units, of the same type as used at Cannon Mill Co., and the 1,000-watt Duplexalite, which raise the illumination far above that usually found in industrial offices.

Haynes Dye & Finishing Co., Winston-Salem, is lighting its office with two totally indirect combination mercury-vapor incandescent units.

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Power Conference Extends Activities

Plans have been consummated to broaden the scope of activities of the National Power Conference, formerly the Midwest Power Engineering Conference, the change in name becoming effective May 1. Over 60 engineering bodies interested in power have been invited to become affiliated members of the Conference. The members of these societies, numbering over 50,000, extend from Maine to California. Headquarters of the National Power Conference are at 308 W. Washington St., Chicago, and activities are under the direction of G. E. Pfisterer, secretary.

No announcements have been made as yet concerning plans for the 1937 Power Show. However, it is understood that every effort is being made to unite the majority of manufacturers of power equipment for a big 1937 show with a conference the same week.

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Safety Conference at Charlotte

Safety methods were expounded by 70 experts and studied by more than 1,000 interested persons last month during the seventh annual State-wide industrial safety conference held at Charlotte, N. C.

Members of the executive committee of the textile division of the National Safety Council met during the conference with W. Dean Keefer, of Chicago, director of the industrial division of the National Safety Council. Members of the committee attending included Marion W. Heiss, general chairman, Greensboro, N. C., W. U. Gaudet, Roanoke, Va., George C. Shuford, Cliffside, N. C., H. H. Willis, Clemson College, S. C., J. T. Trolinger, Elizabethton, Tenn., Forest H. Shuford, Raleigh, J. E. Gross, Lyman, S. C., W. H. Nichels, Jr., Richmond, Va., R. W. Philip, Atlanta, Ga., and T. A. Wilson, head of the North Carolina Industrial Commission.

Following the meeting, it was announced that the Cotton Manufacturers Association of North Carolina would collaborate with the North Carolina Industrial Commission in instituting and sponsoring a State-wide safety contest in connection with the cotton textile industry. The plants are to be grouped into three divisions, according to number of employees, and the plant in each group with the best frequency rate as to man-hour exposure will be presented with a trophy. Contest is from July 1 to Oct. 31.

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Acetylene Flame Used In Belt Splicing

The splicing of rubber power belting through the use of the air-acetylene flame appears to offer time-saving possibilities, according to the June issue of *Oxy-Acetylene Tips.* The two pieces of belting to be joined are first cut at an angle in such a way as to produce a finished lap; e.g., in the case of 8-in. belting, about 28 in. should be used for the completed joint. The first layer of fabric is stripped off, and a further cut is made at the same angle and deep enough to remove another layer of fabric. This progressive step cutting continues until one-half the thickness of the belt is removed. The other end is prepared in a similar manner, the angle of the cuts being opposite. The two pieces should fit neatly together and have a final thickness the same as the original thickness of the belt. The two pieces are then cleaned so that all excess

MODERN CLOTHROOM LIGHTING

The cloth room of Slater (S. C.) Mills is lighted by 25 Cooper-Hewitt mercury vapor lamps recently installed

rubber is removed down to the fabric, care being taken that the fabric is not injured. Balata gun cement is then applied carefully. Excess cement must be carefully removed from the corners of the cuts in order to keep gas pockets from being created when the flame is applied. It is recommended that cement be applied two or three times, letting each layer dry before the next is put on. The two pieces are then ready to join, preferably in a press where they can be made perfectly flat and even. Then the torch flame is applied and the entire surface over the lap heated thoroughly, the movement of the flame over the surface being rapid so that the fabric will not be burned or the surface discolored. For example, the torch is used 5 min. on 8 in. belting. Immediately upon completion of the heating, the spliced section should be placed in a press, or some other means used to apply an even pressure until the belt is reasonably cool. Five minutes in the press is sufficient for 8-in. belt. Water can then be used to hasten the cooling. The two ends of very large belting might be stitched to keep them in place, but this is unnecessary for smaller or lighter sizes. A repair may be made in one hour as outlined above.

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Power Exposition To Be Held in November

The twelfth National Exposition of Power and Mechanical Engineering is scheduled to be held during the week of Nov. 30 in Grand Central Palace, New York, N. Y.

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Engineering Trade News

Carrier Engineering Corp., 850 Frelinghuysen Ave., Newark, N. J., has appointed Walter A. Bowe manager of advertising and sales promotion, according to L. R. Boulware, vice-president and general manager. Mr. Bowe formerly was advertising manager of General Electric air conditioning and more recently assistant manager of General Electric's "New American" program. He is assisting in the reception to the R.M.S. Queen Mary, which is air conditioned by Carrier.

Mason-Neilan Regulator Co., Boston, announces the removal of its Philadelphia office from 930 North Front St. to Fox Bldg., 1612 Market St.

Detroit Stoker Co., Detroit, Mich., announces that Paul O. Stribling, Jr., has been appointed manager of the Charlotte, N. C., district office. Mr. Stribling is a trained combustion engineer and has had many years' practical experience in the power-plant field.

General Electric Co., Schenectady, N. Y., announces that J. W. Lewis, who since 1923 has been assistant to President Gerard Swope, has been elected treasurer of the company, succeeding R. S. Murray who recently retired because of ill health. Mr. Lewis has been with General Electric since 1910, and has been engaged in making financial studies and in executive capacities since that time.

General Electric Co., Westinghouse Electric & Mfg. Co., and **Hygrade Sylvania Corp.** announces a reduction of 15 to 28% in price of the larger-sized lamp bulbs.

Westinghouse Electric & Mfg. Co., Westinghouse Electric International Co. and **Westinghouse Lamp Co.** announce the removal of their New York executive and sales offices to the Westinghouse Bldg., 150 Broadway, New York.

Ely C. Hutchinson, formerly editor of *Power,* a McGraw-Hill publication, has joined the staff of J. G. White Engineering Corp., 80 Broad St., New York. Mr. Hutchinson has had wide experience in the installation and operation of hydro-electric plants, and for many years was connected with Cramp-Morris Industrials, Inc., and was president and general manager of Pelton Water Wheel Co., San Francisco, Cal., from 1926 to to 1929. He was president of Edge Moor (Del.) Iron Co. until 1934. He is a member of A.S.M.E., A.S.C.E., International Electro-Technical Commission, and was a member of the American committee to the World Power Conference in Berlin. At present he is chairman of the A.S.M.E. Power Test Code Committee for Hydraulic Prime Movers, and a member of the Engineers' Clubs of San Francisco and New York.

Cutler-Hammer, Inc., Milwaukee, Wis., manufacturers of electric control apparatus, announces the opening of a new office at 10 West Chase St., Baltimore, Md., which will operate under the supervision of the Philadelphia district office. R. A. Haworth will be in charge.

American District Steam Co., North Tonawanda, N. Y., has appointed Mayer Godchaux, 510 Audubon Bldg., New Orleans, La., representative for southern Louisiana. The company manufactures Adsco products.

General Refractories Co., Philadelphia, announces the appointment of E. Corey & Co., Portland, Me., as dealer-agent in the Portland area. A complete stock of refractories will be carried.

Republic Steel Corp., Cleveland, Ohio, has appointed L. L. Caskey district manager in the Philadelphia territory, according to a recent announcement by N. J. Clarke, vice-president in charge of sales. J. B. DeWolfe, whom Mr. Caskey succeeds, has been transferred to Cleveland to assist George E. Totten, manager of sales of the Tin Plate Division. J. W. Braffett, for the last seven years Detroit representative of Oliver Iron & Steel Corp., has joined the Detroit sales staff, Upson Nut Division, according to C. F. Newpher, sales manager of that division. The New York district sales office of Republic has opened a new sub-office in the State Bank Bldg., Albany, N. Y., with J. M. Higinbotham in charge.

Julius Kahn. president since his founding of Truscon Steel Corp. 33 years ago, has resigned his position to become vice-president in charge of product development of Republic Steel Corp. Forrest H. Ramage has been promoted from assistant manager of the advertising and sales promotion division to manager of the division, and will work in conjunction with the new product development division. Stanley A. Knisely, formerly manager of the advertising and sales promotion division, has been named director of advertising.

Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., announces that the main office at Minneapolis has been enlarged and modernized, and the following changes and additions have been made: The Detroit, Mich., office has moved from 2847 Grand River Ave. to larger quarters at 415 Brainard Ave. The Providence, R. I., district office has moved from 803 Industrial Trust Bldg. to 397 Elmwood Ave. Two new branch offices are being established in the territory served by the Atlanta, Ga., district office. One will be in New Orleans, La., with Paul E. Seepe in charge. The other will be in Charlotte, N. C., with Karl Selden in charge.

Babcock & Wilcox Tube Co., Beaver Falls, Pa., announces the appointment of A. D. Heffron, Jr., as district sales manager of the Chicago territory, with headquarters at 1502 Marquette Bldg., Chicago.

Dr. Herman G. Baity, dean of engineering at the University of North Carolina, announced May 30, that the Textile Foundation had granted $10,000 in support of a cooperative investigation of mill wastes now being made by the school's sanitary and chemical engineering department.

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Engineering Mill News

Faribault (Minn.) **Woolen Mill Co.** plans new boiler plant at mill, with high-pressure boiler units and auxiliary equipment. Cost over $50,000, with equipment. Ralph W. Richardson, New York Building, St. Paul, Minn., is consulting engineer.

Sellers Mfg. Co., Saxapahaw, N. C., will erect six dwellings for operatives at the mill.

Industrial Rayon Corp., Cleveland, Ohio, has asked bids on general contract for new one-story addition, 30x80 ft., to be used as a tank house unit.

Dixie Mercerizing Co., Chattanooga, Tenn., is constructing a two-story addition, 60x105 ft., for cafeteria and storage space, to cost $22,000. Robert & Co., Atlanta, Ga., are the architects.

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FREE FOR THE ASKING—

READERS interested in the catalogs and other useful literature reviewed on this page may secure copies by writing to TEXTILE WORLD, 330 West 42d St., New York, N. Y.

Factoring

Textile Banking Co. booklet entitled "Factoring and Financing" gives a remarkably clear picture of what factoring means, what it does, and what it costs. It includes this simple explanation: "You ship your merchandise to your customers and send the invoices to us. We buy your invoices and give you the full face amount instantly, less your customer's discount, if any, and less the small factoring commission. We make all collections and take all bad debt losses. You have no liability other than to return to us the funds on merchandise returned or rejected."

Liquid Caustic

Mathieson Alkali Works, Inc. New illustrated 72-page book, "Cutting Costs With Liquid Caustic Soda," analyzing the economics of the solid caustic vs. liquid caustic question, and containing much valuable information on the handling of liquid caustic soda. The book is divided into four parts: Part I is edited for the executive interested in changing his plant from solid to liquid caustic, Part II provides useful information for the operating man concerning unloading, handling, storage, and use of liquid caustic. Part III is for the technical man and contains comprehensive data and tables describing the properties of caustic soda and its aqueous solutions, and Part IV gives modern methods of sampling and analysis for the laboratory man.

Oils

Scholler Bros., Inc. Folder describing advantages of Brosco oils and finishes for textiles.

Hosiery Statistics

Textile Machine Works. Annual statistical folder containing charts and tables devoted to full-fashioned knitting machine installations, production and shipment of hosiery, silk deliveries, export markets for hosiery, etc.

Loom Motors

Allis-Chalmers Mfg. Co. Mailing piece describing and showing application of loom motors.

Relative-Humidity Tables

Johnson Service Co. Folder describing advantages of Johnson psychrometer with motor-driven fan, and containing useful relative-humidity table embracing readings from 50° to 198° F. dry bulb.

Valves

Hancock Valve Division of Consolidated Ashcroft Hancock Co., Inc. Catalog containing cross-section diagrams, dimensions, specifications, applications and prices of Hancock line of forged steel valves.

Power Drives

Rockwood Mfg. Co. Vol. 1, No. 1, of *Rockwood Record*, an illustrated rotogravure house organ devoted to pictures of Rockwood installations and pertinent information.

Continuous Card Stripper

Saco Lowell Shops. Illustrated booklet describing advantages of continuous card stripper. Contains test graphs, and photographs of card slivers, card cylinders, and testimonial letters. A second booklet is devoted to the cleaning and blending feeder. Pamphlets describe the one-process picker and the cleaning and blending reserve.

Steam Traps

Armstrong Machine Works. Third issue of *The Armstrong Trap Magazine* containing article on the modernization of dry cans.

Variable-Speed Transmission

Lewellen Mfg. Co. Illustrated 48-page catalog, No. 25-D, showing the latest developments in Lewellen variable-speed transmissions and speed controlling devices. Contains dimension tables, belt formulas, speed formulas, etc.

Rayon Warp Sizing

Charles B. Johnson. May issue of *Rayon Warp Sizing Specialist* containing article on temperature control for rayon slashers.

Control Instruments

Foxboro Co. Mailing piece devoted to three instruments, the long-distance thermometer, the portable thermometer, and the combination instrument.

Power Transmission Equipment

Link-Belt Co. Illustrated 208-page book, No. 1500, containing description, specifications, dimensions, mountings, prices, etc., for power transmission equipment including pillow blocks, clutches, collars, couplings, gears, hangers, pulleys, shafting, take-ups and grease cups.

Stokers

Iron Fireman Mfg. Co. Catalog 3905 devoted to the Iron Fireman pneumatic spreader stoker and auxiliary equipment.

Motors

Reliance Electric & Engineering Co. Two folders describing heavy-duty motors for direct current 40° C. rating. Details of armature winding stressed.

Traveling Cleaner

Parks-Cramer Co. May issue of *Parks Parables* containing some interesting sidelights on the development of the overhead cleaning system.

Pumps

Worthington Pump & Machinery Corp. Two bulletins describing vertical triplex power pumps of the single-acting plunger type, and horizontal single-piston pumps of the valve-plate type for general services with pressures to 250 lb. per sq.in.

Switchgear and Cubicles

General Electric Co. Bulletin describing advantages, and containing dimensions, specifications and connection diagrams of Type MI-6 metal-clad switchgear. Folder devoted to new cubicles with FH oil-blast breakers for 15,000-volt service.

Anti-Corrosion Pipes

Republic Steel Corp. Fourth edition of "Toncan Iron Pipe for Permanence" is a 64-page book profusely illustrated with test charts and tables, and incorporates new sections dealing with threading, air conditioning, industrial maintenance, and process uses. There are a number of photographs of actual applications.

Dispersing Agents

Dewey & Almy Chemical Co. Bulletin outlining characteristics of Daxad dispersing agents and discussing differences between wetting and dispersing agents.

Diesel Engines

Fairbanks Morse & Co. Illustrated bulletin 3300D on construction and operation of Model 33-D diesel engines now available in four cylinder sizes and in ratings as low as 250 hp.

Control Instruments

Bristol Co. Bulletin 440 covering new series of Ampliset free-vane controllers for time-temperature, flow, liquid-level, pressure, time-pressure, and humidity.

Dyes

General Dyestuff Corp. Booklet "Naphtol AS On Mixed Fabrics of Viscose and Cotton." Contains swatches dyed with various Naphtol AS combinations and data on fastness properties, dischargeability, etc.

Conveyors

Standard Conveyor Co. Illustrated 40-page catalog describing various types of conveyors, chutes, lifts, tiering, machines, and pilers, and showing applications in textile and other industries.

Stainless Steel

Allegheny Steel Co. Bulletin illustrating wide variety of uses of Allegheny metal in the textile industry and describing different types of chrome- and chrome-nickel-steels.

Practical Research

E. F. Houghton & Co. First issue of *Research Illustrated* devoted to the current results of extensive Houghton laboratory and field research in the various branches of the textile industry. Contains articles on control of methods and materials in sizing rayon warps; methods of checking starches for better results and lower costs in the cotton slasher room and weave shed; direct help in direct knitting of full-fashioned hosiery; oil and soap residue in woolens and worsteds, and how the proper choice of stock lubricants helps prevent odors. The book is profusely illustrated with photomicrographs of fibers, yarns, and fabrics.

Power Transmission Appliances

T. B. Wood Sons Co. Folder featuring Universal Giant power transmission appliances. Price list included.